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Washington Highlights

Future of the OPA and the price control program is at a final decision point at least two weeks after Congress had thought it had completed the necessary legislation.

The unexpected veto of the original OPA extension bill threw the entire price control situation into such a state of confusion that on the eve of the new vote, no one was hazarding predictions of what the final result will be this time.

Meanwhile the oil industry, like almost all others, was marking time on the question of price increases. Removal of price ceilings from crude oil remains a virtual certainty in the near future, but final disposition of the OPA revival bill will determine the exact time.

If Congress sends another bill to President Truman which he feels he cannot sign, it will mean no more OPA. A second veto would finally dispose of the whole question, in the view of most members of Congress. Even the most enthusiastic Administration supporters in Congress doubt that any attempt would be made to enact a third bill if the pending one is vetoed.

Such a result, of course, would mean that the oil industry could proceed with its own system of pricing without regard to any agency of the federal government. Most of the companies have already made plans contingent upon such action, and experts here believe that a price increase of approximately 25 cents a barrel for crude would be the result.

Should Truman sign the new bill, however, it would mean some delay in getting price controls removed from the oil industry, though OPA is already on record as favoring such action within the next two to three months.

During the heat of the price control battle in the House of Representatives about three months ago, Rep. Wright Patman of Texas secured from Chester Bowles, then price control administrator, a promise that ceilings would be taken from oil within six months. There has been nothing since to indicate that OPA has changed this estimate, which would mean that the ceilings may be removed at any time up through September.

President Truman's veto of the first bill caught some of his closest friends in Congress completely by surprise and definitely angered some of them.

Meanwhile, the delay in adjournment of Congress occasioned by the necessity of acting again upon a price control bill was being used by sponsors of the tidelands quitclaim bill for a last minute drive to get the measure through the Senate.

While Senator Pat McCarran, Dem. of Nevada, chairman of the Senate Judiciary committee was holding out hope for getting a Senate vote before Congress goes home, other members of the Senate were not so confident.

All doubt that Majority Leader Barkley has been leading the move to keep the bill from reaching a vote in the Senate was dispelled by the late developments. Barkley, in his key position, had maneuvered the bill from a place on the calendar and it was evident that only the strongest pressure from Senators representing the states vitally concerned in the tidelands title would end this one-man blockade.

While there has been no specific information available, it is understood that Barkley has been trying to head off the vote so that Truman will not be required to act on the bill.

Truman will certainly will be advised by some of his top men to veto the bill if it reaches him, because of the litigation now pending before the Supreme Court of the United States designed to decide the title to the California coastal submerged lands. They feel that since Truman approved the filing of the suit, and announced that he had done so, he could not consistently sign a bill which would immediately void the pending litigation.

At the same time, a veto of the measure would be considered a slap at Edwin Pauley, California oil man in whom Truman has shown great confidence. In fact, Truman's first big break with Congress came over his nomination of Pauley to be Undersecretary of Navy. The President has never forgiven the Senators who led the fight against Pauley's confirmation, as evidenced by his recent brusque and, in the opinion of some leaders, ill-advised letter to Senator Charles Tobey, Rep. of New Hampshire, who took the most active part in the fight on the Californian.

(Continued on Page 32)

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Deep Zone Production From The Cymric Field, Kern County, California

John H. Beach[1] and Vernon L. King[2]

The "deep zone" of the North Cymric Field was discovered November 23, 1945, when Independent Exploration Company — Oceanic, "Brunt" 1 (Section 22, Township 29 South, Range 21 East, M.D.B. & M.) was completed for an initial twenty-four hour gauge of 956 barrels, 37° oil, 20/64" bean, 780 p.s.i. tubing pressure and 1080 p.s.i. casing pressure from a depth of 4650-4700 feet. The discovery well was drilled about one mile northwest of the old Cymric field located in Section 26, Township 29 South, Range 21 East, and about one-half mile west of the Superior, "Western" extension of the shallow Cymric production. Prior to the completion of the Independent well all production in this field came from shallow Tulare and Etchegoin sands and from thin sands in the top of the "brown shale."

The original Cymric field regarded as McKittrick Front was found by H. S. Williams, in 1916, nearly twenty years after the discovery of McKittrick. Inasmuch as heavy oil was found in the shallow beds, various attempts were made at different times to find deeper horizons. Nearly all the wildcats were failures commercially but they did discover sufficient showings to keep alive exporatory interests. One of these was the Standard Oil, "Midway Premier" 2 in Section 22, 29/21, drilled in 1916. While drilling, the well blew out and covered the hillside with oil which was evident for a number of years. Several later wells proved unsatisfactory if not discouraging, but the search for shallow production went on intermittently with little or no success. At the beginning of World War II with an increased price for heavy oil as an incentive, activity was resumed in the area with the result that the Superior Oil Company discovered a substantial pool in the western area about two miles northwest of the old Cymric field. Shortly after this time, Rothschild-Bender opened a Carneros pool in the Sheep Springs area and the Union Oil Company followed with a discovery of Miocene production in a pool just west of the old Cymric field. With this additional information on subsurface conditions combined with the data from the older wells, the location was made for the discovery well mentioned in the opening paragraph of this article.

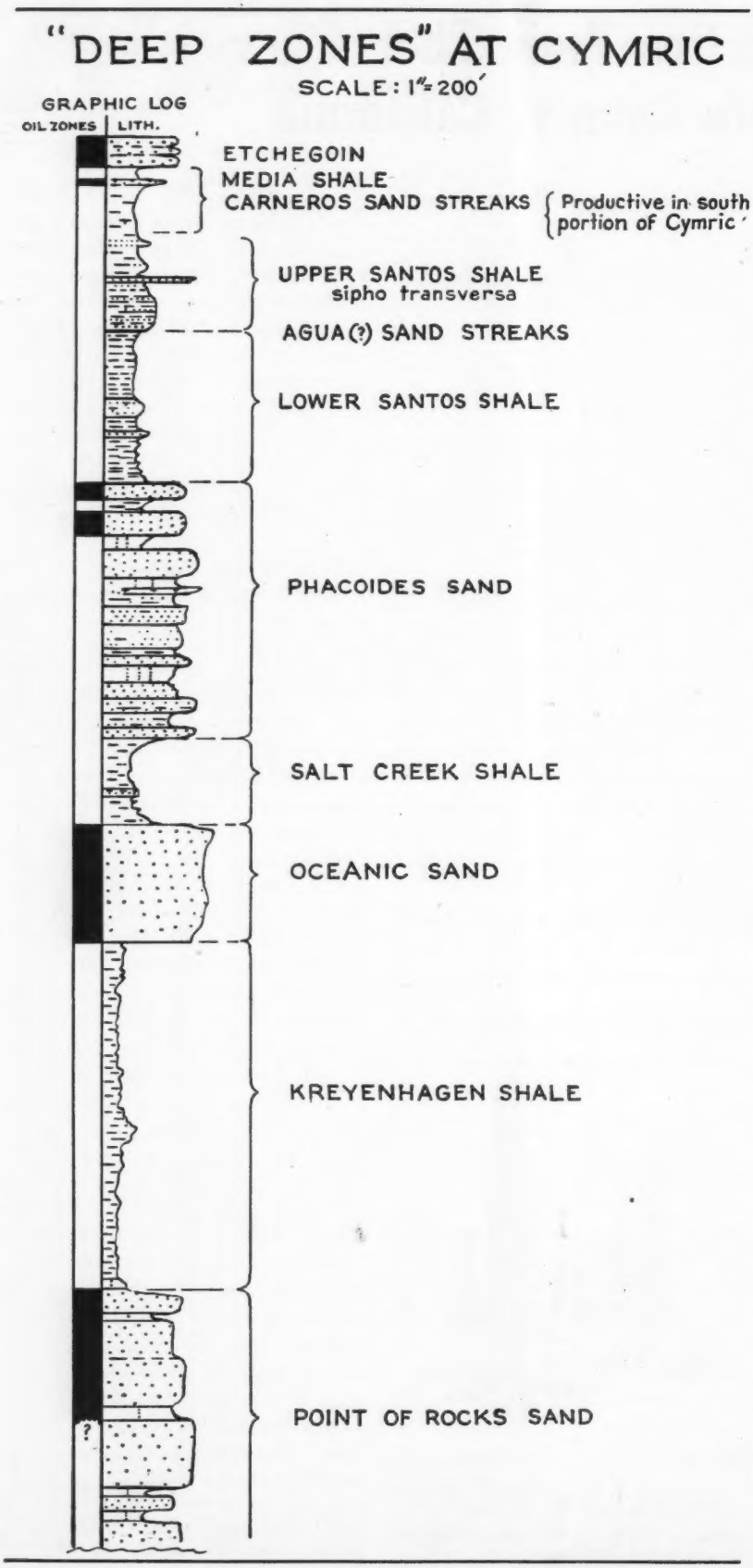
At the present writing twenty-two wells are producing from the "Oceanic" sand and two are in the process of completing in the Zone. The operators within the "Oceanic pool" are Honolulu Oil Corporation, Standard Oil Company, Superior Oil Company, Universal Consolidated Oil Company and Independent Exploration Company.

While the field appears to be of relatively small areal extent, the effective permeability and thickness of the Oceanic sand promises exceptional recovery from this zone. Approximately 300 acres have been proved to be productive from the Oceanic sand with the sand thickness averaging about 125 feet over the structure. Ultimate recovery from the zone has been estimated to be between 20 and 25 millions of barrels from the Oceanic sand alone. It is the authors' opinion that 22,000,000 barrels of recoverable oil from the Oceanic zone is a fairly reasonable and conservative estimate for the ultimate production from this sand.

The stratigraphy and structure of the greater Cymric field is not simple. The trap is no doubt formed by a northwesterly trending anticlinal fold plunging to the southeast with a fault or faults cutting across the structure at the extreme north end. Whether this faulting is directly responsible for northerly closure on the anticline is not definitely known, but it is apparent from subsurface data that immediately north of Independent's discovery well, the structure drops off abruptly to the north to the H. H. Magee, "Bolton" 2 well which was completed as a small pumper in the Carneros sand at a depth of 5060 feet. The Oceanic sand was not recognized in this well which reached a total depth of 6010 feet and bottomed in Kreyenhagen shale. Two wells, Superior, "Woody" 77-22, and Universal Consolidated, "Sauerdough" 7, on the northeast side of the structure have failed to pick up the Oceanic sand. The absence of the sand in this local area may be caused by the thinning of the zone of the east or by faulting which cuts out the sand or by a combination of both.

In addition to the Oceanic sand other "deeper" sands have been

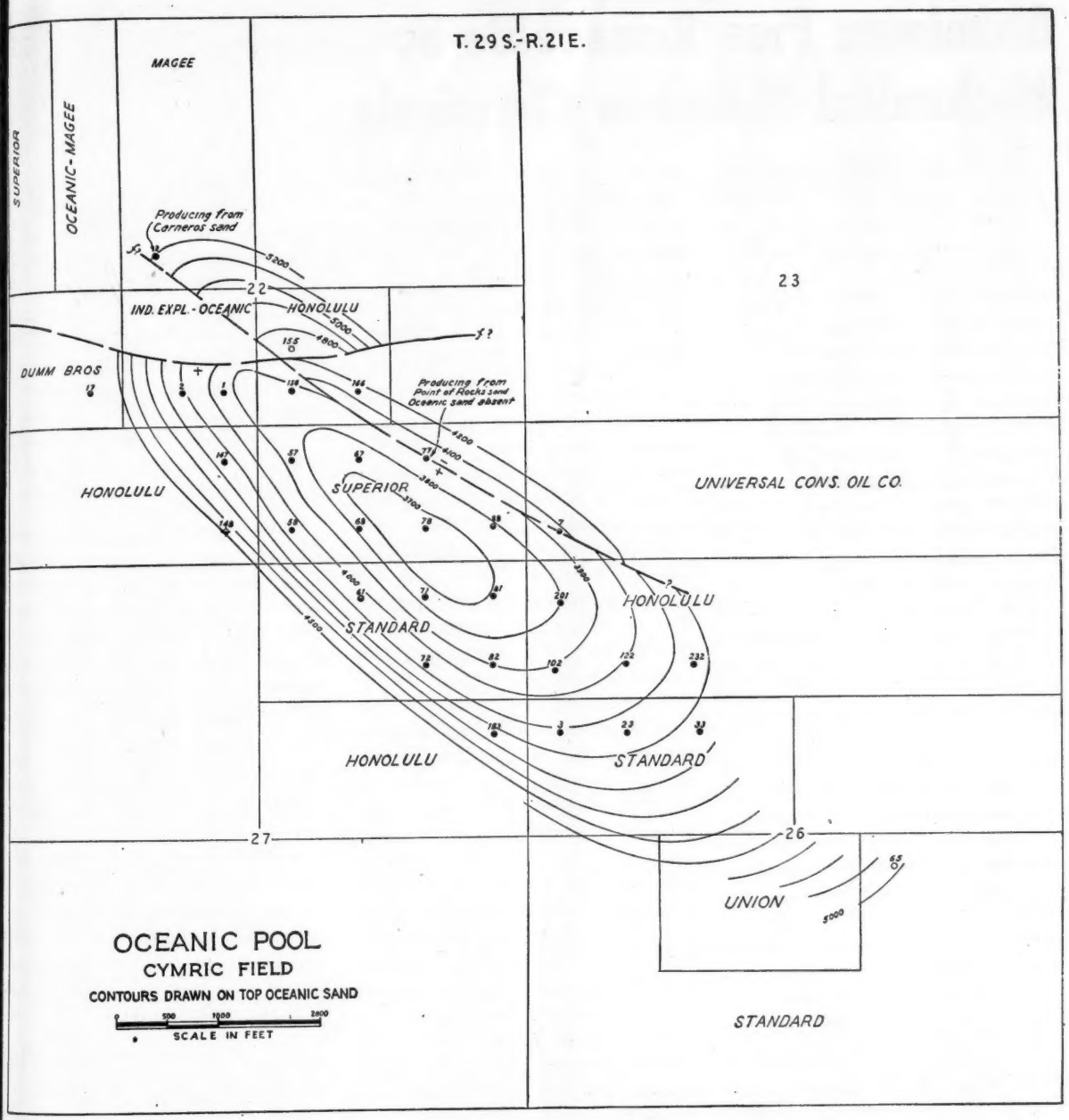
[1]John H. Beach, Geologist for Independent Exploration Co., Bakersfield, Calif.
[2]Vernon L. King, Consulting Geologist, Los Angeles, California.



proved to be productive on the Cymric anticline. The Standard Oil Company, "Weston" 71-27 cored oil sand in the upper portion of the Phacoides sand approximately 480 feet stratigraphically above the Oceanic sand and found it to be productive of oil and gas on an open-hole formation test. The well was subsequently deepened and completed in the Oceanic sand. Superior Oil Company "Woody" 67-22 drilled through the Oceanic sand and the underlying shales into the Eocene Point of Rocks sand which was topped at a well depth of 5120 feet. Total depth was 5526 feet. This zone was tested and found to contain gas and some condensate on a production test but the well was plugged back and completed in the Oceanic sand which proved to be a high pressure gas sand at this high structural location (see map). Superior, "Woody" 77-22, one location east of No. 67, was deepened to the Point of Rocks sand after finding the Oceanic sand absent. This well was completed in the Point of Rocks sand between depths 5038 feet and 5340 feet. The production records on this well shows a very high gas-oil ratio. With an oil production of 35 B/D, 48° gravity, the gas rate is 2500 M.C.F., which gives a gas-oil ratio of 73,000. It is hoped that a "Black oil" zone may exist at lower structural positions along the flanks of the anticline within the Eocene Point of Rocks sand.

The Cymric field as outlined by present production contains six oil zones known as the Tulare, Etchegoin, Carneros, Phacoides (Standard, "Weston" 71 sand, or Vaqueros), Oceanic and Point of Rocks sands. Production from these several zones occurs in general along the Cymric anticline but under different structural conditions, making the geological picture more complicated than is apparent from looking at the map. The production from the Oceanic and lower sands is at present confined to an elongated anticline having a closure in excess of 600 feet, as outlined on the accompanying map on opposite page.

* * * *



Wells Still Coming In in Cymric Area

Recent completions in the prolific Cymric field of Kern County included Standard Oil Co.'s Weston No. 61-27W in Sec. 27-29s-21e, flowing 449 barrels of oil and 150,000 cu. ft. of gas from 4895 ft., and Weston No. 43-26w in Sec. 26 at 3535 ft. for an unestimated yield. Superior Oil Co. has finished Woody No. 88-22, its fourth condensate producer from the Point of Rocks zone. The well, bottomed at 5344 ft., produced 33 barrels of 48.8 gravity in 7½ hours, together with considerable wet gas. Standard has location staked for Weston No. 203 in Sec. 26. Honolulu Oil Corp. is preparing to drill M. P. No. 22-155 in Sec. 22.

Victory Oil Co., owner of shallow producers in the field, has placed its No. 29 in Sec. 26 on the pump. Casing is cemented at 838 ft. No. 28 is drilling at 300 ft. No. 27 is cleaning out, with plug at 1020 ft. Universal Consolidated is drilling Sauerdough No. 8 in Sec. 23 below 2600 ft. No. 7 is shut in, after coming in from a plugged depth of 5350 ft. Independent Exploration is grading ground for No. 42 and No. 44 in Sec. 21. Argentina Consolidated Mining Co. is bailing its Olympic No. 17 in Sec. 22, after plugging back from 6527 to 1515 ft.

Aluminum Pipe Removable by Mechanical Means or Chemicals

The effective and economical utilization of a hole drilled to secure maximum production from all sources penetrated will sometimes require the removal of a part of a string of casing or the removal of a part or all of a liner. Many specific and individual conditions make such removal of pipe desirable but there are several sets of more generalized subsurface conditions encountered in many oil fields that have led to the development of pipe removal methods that have become standardized in their application. These include the removal of sections of pipe set opposite productive zones for future production and the removal of liners set through an oil zone in a well that is later to be deepened or recompleted. The pipe for this purpose must be readily removed and at the same time perform the functions of casing or liner during the time it is in service. Pipe manufactured of an aluminum alloy has been widely used for such purposes and recent operations have disclosed that it can be effectively removed from the well by chemicals as well as by mechanical means without damage to the steel pipe that is to remain in the hole.

Modern drilling technique provides for comprehensive formational data during the drilling of a well. Cores, electrical logging, radioactivity logging, data from mud returns and other means are utilized to secure information on the character and fluid contents of different strata. In fields that are being developed, definite markers are established; and formations encountered in completed wells are correlated to aid in drilling other wells, non-conformaties naturally being taken into consideration. In a proven area, therefore, the oil-bearing formations can usually be located with a considerable degree of accuracy and pipe programs can be established to equip wells most economically and effectively. In cases where sections of casing or liner are later to be removed, the positioning of these sections can thus be done with assurance that the removable sections will be properly placed.

Two general applications of aluminum pipe are shown in the accompanying illustrations. At "A" in Figure 1 a section of aluminum pipe is made up in a string of casing with steel pipe above and below. The alumninum section is positioned opposite a productive zone that will be produced at a later date and has been cemented through the zone to protect the oil bearing formation until it is to be opened up. At "B" the section of aluminum pipe has been removed, forming a "window" through which oil can flow into the well. The well can be recompleted for utilization of this production in accordance with the conditions encountered. If the zone below has been depleted a plug will probably be placed below the upper zone now opened if the removal method employed has not already required such a plug. In some cases where the pressures can be properly controlled, upper zones have been opened to production before depletion of the lower zone and both zones then produced together, particularly when increased production from the well is desired. Tubing and pumps are installed to meet the production requirements.

In Figure 2 an aluminum liner has been set to provide for deepening or redrilling operations after an upper producing zone has been depleted and a lower zone is to be penetrated. At "C" the well is producing from the upper zone. The liner consists of a blank section of aluminum pipe below which is a section of perforated aluminum pipe. The blank section has been cemented through a cementing collar to the shoe of the casing above, a cementing basket being located below the ports (through which the cement slurry passed) to protect the producing zone below. At "D" the hole is shown with the liner completely removed. The cement behind the blank section of pipe is also removed and the full size hole below the shoe of the casing is available for the deepening operations.

While there are other applications for aluminum pipe in oil wells the illustrations given will serve to indicate the methods of removal now being employed. The fact that the alloy is readily drilled up was the reason for its earlier use more than a decade ago.

Mechanical Removal

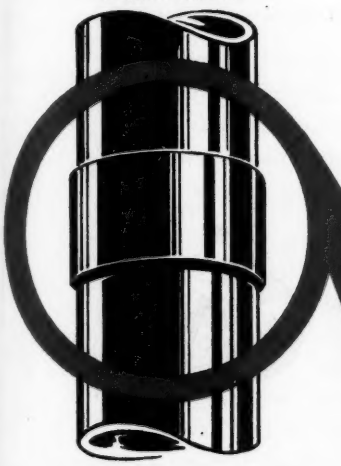
First consider the drilling up of an aluminum liner similar to the one illustrated in Figure 2. Although various types of bits have been used to perform the drilling operation, experience indicates that the blade-type bit is effective in cutting the metal in a manner that will permit easy removal of the cuttings from the well. A piloted bit of this type is frequently used. The pilot stabilizes the bit while drilling and its diameter should be within one quarter inch of the inside diameter of the pipe being drilled up.

Bits used for drilling the aluminum should have circulation provisions adequate to give sufficient velocity to the drilling mud to carry the cuttings away from the bit. It is advisable to circulate freely for a few minutes before each new drill pipe connection is made. For quick removal of the pipe, mud viscosities of more than 30 seconds (Marsh Funnel) are best, although lower viscosities can be employed. The chips of the metal should be screened from the drilling fluid when they

LANE-WELLS COLLAR LOCATOR ASSURES EXACT PERFORATION PLACEMENT

Lane-Wells establishes the direct relationship between collars and formations on the Radioactivity Log and then picks up the related collar with the Gun Perforator to place shots exactly where wanted in formation.

Each Collar Becomes a *PERMANENT* Bench Mark



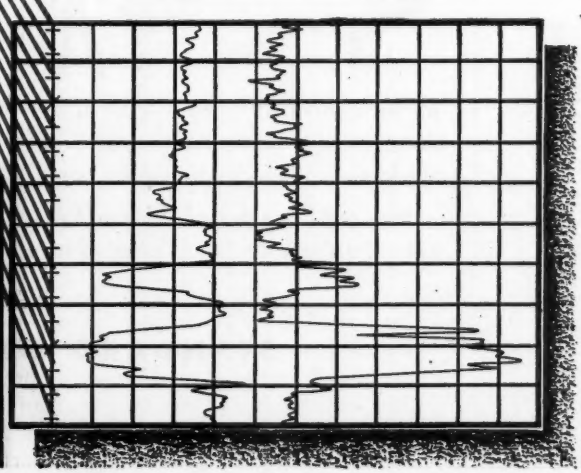
MEASUREMENT VARIABLES ELIMINATED

The Collar Locator on the Gun Perforator picks up the collar shown in the Collar Log. Gun perforations can be placed exactly where desired.

The Lane-Wells System of establishing collar-formation relationship on the Radioactivity Log reduces all well measurements to a single standard. Each collar becomes a permanent bench mark in fixed relationship to the formations. Zones to be tested, zones selected for plug-back operations, squeezing or acidization can be quickly and confidently relocated by the collar locator on the gun perforator. Gun perforating can be done accurately without references to bottom or to artificially placed formation markers.

The "Collar Log" is not charged for when run with a Radioactivity Well Log but is furnished as an additional service to provide Oil Well operators with more useful information about their wells.

For full details, call your nearest Lane-Wells branch



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Looking Around

By THE OBSERVER

WHEN A "FELLER" WANTS A FRIEND

So she sat down and began her letter: "Standard of California, Dear Friend." For a friend was what she needed.

"Listen, chum," said she, in effect, "I'm on a spot. How about lending the old helping hand?"

The next thing you know, we were out buying a cluster of very special posies—a quaint occupation for a corporation in the rugged, sweaty, be-overalled oil business.

It happened thus. The writer of this letter lives hundreds of miles from San Francisco. She isn't acquainted there. She knew only that certain pals would take a ship at that port and that it was personally important to see them

off with a special "cheer"—particular flowers and a particular message. But she knew neither ship nor sailing date!

She needed a friend in San Francisco. So she turned to a friend of hers —Standard of California. In our oil-stained fingers we took the bill she enclosed, bought the flowers, located the ship, and tucked the message into the *bon voyage* basket. When those certain passengers came aboard...*S'prise!*

As old Joe Anonymous once put it, "a friend in need is a friend indeed." There we were, functioning as a friend in need—even if we have fewer than no facilities for buying flowers and carrying messages.

Yet, maybe it's no wonder. For more than 30 years, we've been associated in the public mind with service —motoring service. In the past 15 years—through Standard Stations—nearly everybody in the West has experienced that service. So each year more people address us: "Standard of California, *Dear Friend.*" We're mighty proud they think of us that way.

Listen to "The Standard Hour" Sunday evenings, now at 7:30 over N.B.C. Stations.

STANDARD OF CALIFORNIA

reach the surface to prevent them from recirculating down the drill pipe.

In cutting the pipe, the speed of rotation and the weight carried on the bit should be so regulated as to cut the aluminum into chips and not into ribbons. Rotary table speeds of from 75 to 125 r.p.m. with light weight carried on the bit have been found to secure this result. The correct weight can be checked by the type of cuttings that are produced.

The time necessary for drilling up aluminum liner by means of a pilot bit of the type referred to is indicated by the following records, one bit being used in each case:

Well "A"

Depth—7940′
Length of liner—197′
Size of liner—5½″
Drilling and circulating time—23 hours
Average distance per hour—8.5′

Well "B"

Length of liner—275′
Size of liner—5¾″
Drilling and circulation time—35 hours
Average distance per hour—7.9′

Well "C"

Length of liner—95′
Size of liner—5″
Drilling and circulating time—16 hours
Average distance per hour—6′.

Well "D"

Length of liner—121′
Size of liner—5″
Drilling and ciculating time—13 hours.
Average distance per hour—9.3′

After removing the pipe the hole can be drilled or reamed out to gauge with the tools being used for deepening operations. The plans for redrilling or recompletion will determine the operations after the aluminum pipe has been drilled up and in some cases the hole has been enlarged below the shoe of the casing by means of a wall scraper or underreamer.

The opening of "windows" by cutting away a section of aluminum casing for production of an upper zone as shown in Figure 1 is commonly done with an expanding wall scraper. The blades of the wall scraper are opened out at the top of the aluminum section and the pipe is cut away to the bottom of the productive zone. When the casing is encased in cement it will generally be necessary to make more than one run with the wall scraper, using longer blades for each successive run. Sometimes it is desired to cut beyond the original diameter of the hole and thus scrape away the face of the sand in order to make sure there is free access of oil from the formation into the well. This is done by using blades of suf-

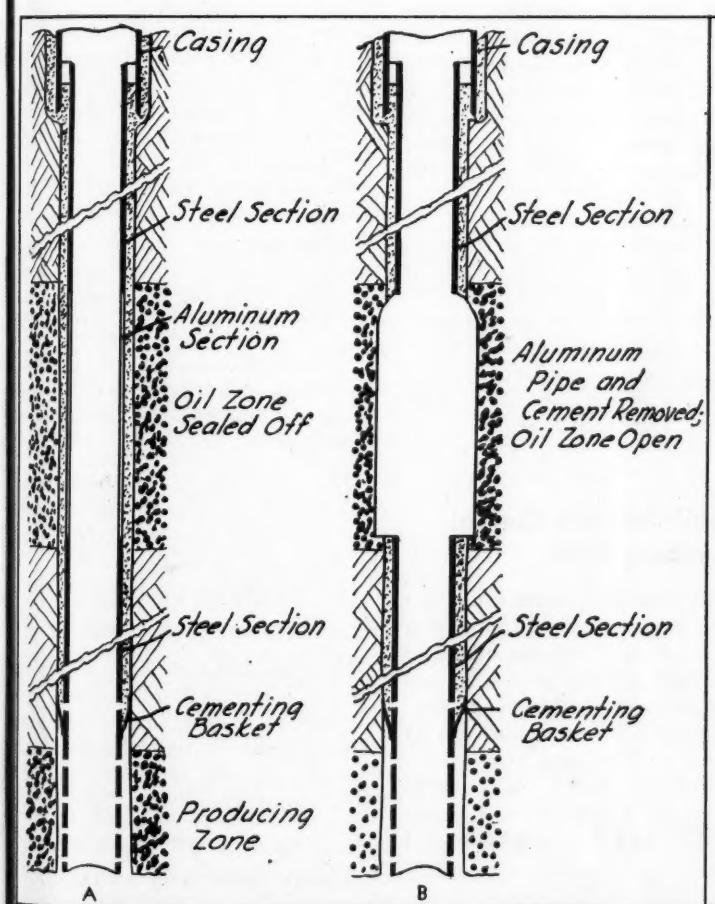


Fig. 1

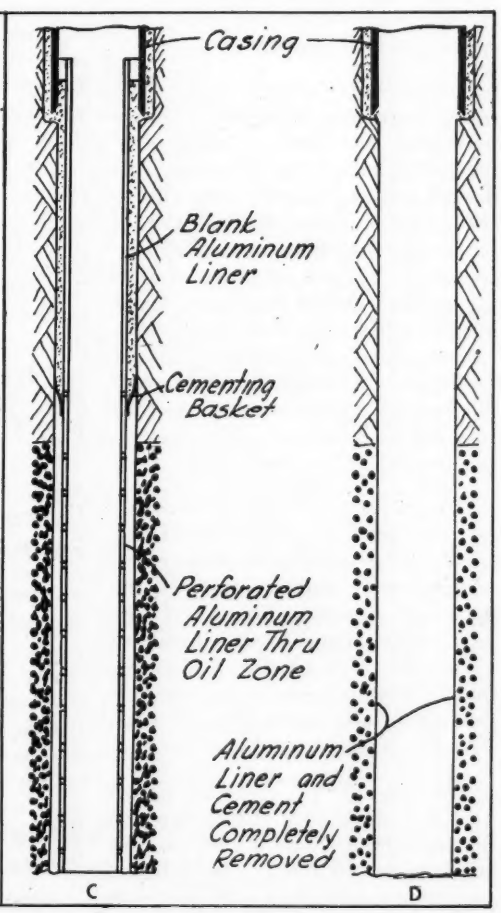


Fig. 2

ficient length for the purpose when making the final cut.

Chemical Removal

Both acids and alkalies are now being used to remove the aluminum pipe in oil wells. The use of chemicals precludes the necessity for rotary drilling equipment at the time of removal and this is probably the chief reason for their employment in this kind of service.

The acid used for aluminum pipe removal is muriatic acid, the commercial form of hydrochloric acid. This is furnished with an inhibiter and in the removal operations there has not appeared to be any damaging reations on the steel pipe when such pipe is in conjunction with the aluminum section. It will, however, react on any oxide and therefore will remove any scale that may have formed on the steel casing. This must be taken into account when the amount of acid necessary is computed since the oxide present will spend some of the acid.

Caustic soda (sodium hydroxide) reacts with aluminum but releases hydrogen as it forms a soluble sodium aluminate. To eliminate this hazard and at the same time add to the effectiveness of the solution, a patented compound consisting essentially of caustic soda but including sodium nitrate has been developed and has been used successfully for the chemical removal of aluminum pipe. This also forms a soluble sodium aluminate but the gas released is ammonia. There is no reaction with the steel pipe.

Care must be exercised when using chemicals because there is always the possibility of damage to equipment as well as injury to the personnel, particularly when the men are not familiar with handling chemicals. The best way of introducing chemicals into the well for removal of aluminum pipe has been found to be the dump bailer method.

The amount of chemical necessary for the removal of pipe depends on the volume of aluminum alloy in the section. Aluminum pipe is manufactured in standard sizes and wall thicknesses so the amount of metal in a section of pipe can readily be computed. Sufficient chemical to remove the metal cannot be contained in the section at one time so the removal must be done by placing liquid in batches. After one batch is spent, the second batch is deposited and the spent chemical displaced. The time allowed for complete reaction of a batch is approximately two hours. The size and thickness of the pipe govern the number of batches necessary, a thin wall pipe sometimes not requiring more than three batches.

In preparation for the chemical operations the hole should be bailed down and the fluid head reduced as low as possible. In cases where it is necessary to keep the fluid level down, some of the spent chemical may have to be bailed out of the well before the job is completed. Some engineers remove each batch after it has been spent.

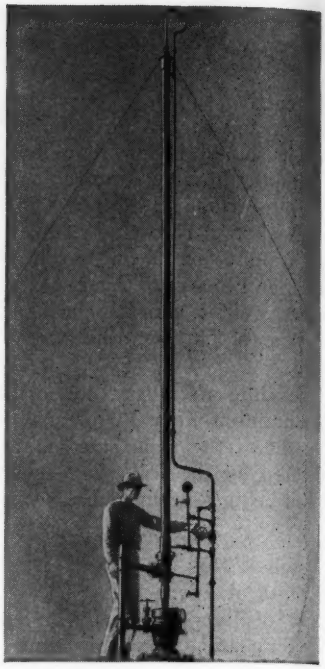
When removing a "window" at an upper zone by chemicals, a plug is placed below the section to be removed. This plug should naturally be as close to the bottom of the window as possible in order to reduce the amount of hole below which has to be filled with the chemical.

When formations are to be acidized to increase production of a well in which there is aluminum pipe that is not to be removed or damaged in any way, the aluminum section or sections are protected from the acid and the acidizing operation performed in the usual way.

Hydraulic Paraffin Control For Pumping Wells

A new, simple-to-operate method of controlling paraffin in pumping wells, that greatly reduces pumping costs, where wax is a production problem, is announced by Kobe, Inc. It consists of a lift (see illustration) that has been developed to make use of the hydraulic power on the lease to raise and lower a series of scrapers positioned in the production tubing.

Operation is controlled by two valves at the base of the lift. When



the top one is open and the bottom closed, the power oil flows through the top of the lift and down the well to actuate the pumping unit in the production tubing. When the bottom valve is open and the other closed, the power oil flows through the bottom of the lift, forcing the piston, attached to the top of the power oil tubing, upward in the lift. This moves the scrapers on the power oil tubing through the paraffin zone, loosening the wax, which can then be easily pumped from the well.

Periodic operation of the lift keeps the production tubing free of heavy wax deposits.

The new Kobe lift has been tested in numerous fields during the past two years and is now in commercial production. It is being called for wherever wax is a pumping problem.

To minimize flood damage and insure uninterrupted movement from oil field to refinery, an oil company has designed and built floating docks for use at oil terminals on the Mississippi River.

Florida, newcomer to the list of petroleum states, in 1945 produced about 27,500 bbls.

Utilization of Electric Energy in Natural Gasoline Plants

PART II
(concluded)

By
H. S. DAVIS
General Electric Company

Motor Applications

Before getting into specific applications I think it would be wise if we reviewed our progress. We have entered the plant through high-voltage switchgear with adequate interrupting capacity and divided our supply between two load center units consisting of Pyranol-filled transformers and low voltage circuit breakers which feed each of our motor circuits or groups of motor starters. From here we have followed one of these circuits to a group of explosion-proof starters and from there to the explosion-proof motors.

With this summary, let's proceed now to a wider consideration of the absorption plant. Back in the hey dey of field discoveries in California these plants mushroomed along with production. Cost was no item, anything to get them in and running. In may instances the pay off was probably less than a year. Under these conditions, equipment efficiency and general plant economy was a secondary consideration. The whole plant accomplished its pumping services by use of the simplex and duplex direct acting steam pumps. This is no reflection on these work horses of the oil industry, for they have been performing pumping jobs for some 200 years and they still fill specific needs in the absorption process. Earlier use of steam pumps was also called for by lack of design and process information. Under these conditions it was impossible to make a close application of a pump and the flexibility of the simplex and duplex units was a very desirable factor.

In the beginning, absorption plants were primarily designed for producing natural gasoline, which was not too difficult, but as time went by, many refinements were added which made plant operation more difficult. Accompanying this additional complexity, have come centrifugal pumps and motors, whose entry into the field is comparatively recent, probably not over 15 years ago.

With the coming of centrifugal pumps, close-clearance simplex steam pumps have taken over that group of services where high discharge pressures are maintained and the pumping rate is under 100 gal. per min. In fact, in the newer plants I believe we will find about 40% centrifugal and 60% reciprocating.

In any plant where process steam is a necessary commodity, good engineering dictates that it is good practice to throttle higher boiler pressures through steam pumps, and turbines. How far to carry this line of reasoning is a matter for careful scrutiny by each plant management, involving heat balance, fuel costs, and the cost of generated or purchased power. Similarly, if we are to consider multiple cylinder gas engine drive vs electric, the factors of gas at between 10 and 15¢ per 1000 cubic feet, power at from 7 mils (.7¢) to 1¢, original cost, in stallation cost, maintenance cost, and depreciation must all be weighed carefully.

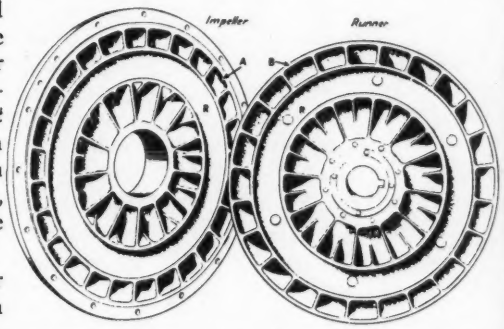
Assuming now, that some of our pumps are to be electrified, which ones would they be. At first glance, the centrifugals would be the only ones where this would be economical. Power pumps cost almost 2½ times as much as reciprocating steam so this application would be hard to justify unless we had a particular control problem where variable speed electric drives could be justified.

This brings us to the first aspect of applying AC electric motors to pump service. The standard squirrel cage induction motor is essentially a constant speed device, and in order to get variable speed we must either interpose speed changing devices, or we can use special types of motors with variable speed characteristics. The following is a list of speed-changing devices for use with the standard motor:

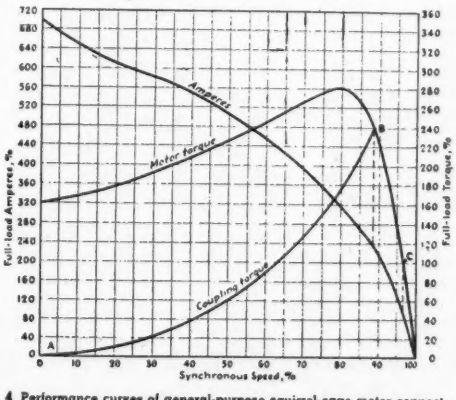
1. Aldrich - Groff controllable capacity pumps
2. Hydraulic couplings
3. Electric couplings
4. Reeves Vari-Speed - Link-Belt PIV

Commenting on these in order, the Aldrich-Groff pump is a triplex positive displacement type, with 6" stroke—100 bhp as the maximum size. Pumping against a constant head, by reducing the stroke the driver hp should fall off in direct proportion. It is adaptable to automatic control with a diaphragm regulator.

Hydraulic couplings are coming into more and more common usage on pump drives. They can be used on the power pump, but since this is a constant torque load, there is no saving in motor power, because at



3 Construction of impeller, *left* and runner, *right*, for a traction hydraulic coupling. These operate facing each other, as in Fig. 1, 2



4 Performance curves of general-purpose squirrel-cage motor connected by hydraulic coupling to load with hard-starting characteristics

Fig. 6

any reduced speed the difference between the bhp at the pump shaft and the hp output at the motor shaft is dissipated in losses within the coupling. On a centrifugal pump, the torque falls off as the square of the speed and the hp as the cube of the speed, so, assuming one h.p. required, at half speed we should theoretically consume only ⅛ the power. However, half of this, or 1/16th hp, is still lost in the coupling. The curves in illustration No. 6 show some interesting relations for the fluid drive.

The electric coupling has practically the same characteristics as the fluid drive with the exception that it is manually variable. (I should say also that a coupling is made with manual adjustment.) This of course allows us to pick our accelerating torque as shown in the sample curves on slide No. 7.

The Reeves vari-speed, the Link-Belt PIV, and others use the principal of varying pitch diameter on a close-coupled belt drive. These units are better than 90% efficient and lend themselves to either small power pump or centrifugal pump drives.

It should be mentioned here that any of these drives can be operated with a small reversing pilot motor that is capable of being controlled by temp., press., or flow meters.

In the field of special motors, there is another group consisting of:

1. Slip Ring Induction motors
2. BTA motors
3. Thymotrol
4. D.C. Motors driven by M-G sets with control by Amplidyne

Slip ring motors are, of course, one of the oldest in the family of variable speed AC motors. Their greatest disadvantage is similar to the electric motor and hydraulic coupling, for the hp input is constant at reduced speeds when driving a constant torque load and the difference in energy is dissipated in the grid resistors which are in the rotor circuit.

The BTA motor is essentially a constant torque machine with an efficiency of around 75% and smoothly variable speed which is accomplished by shifting a brush rigging. Its chief drawback is the fact that it cannot be enclosed. Too high in price for most common pumping jobs, it has been widely used on boiler feed pumps. Here again, pilot motor operation is available to operate in conjunction with any instrumentation.

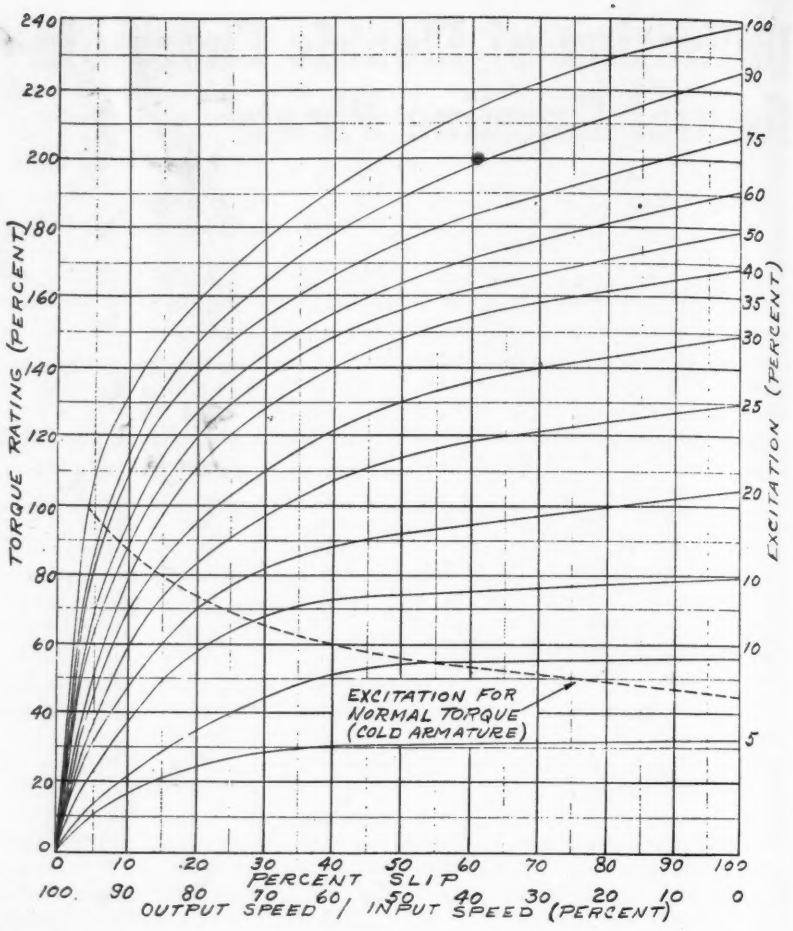


Fig. 7
Typical characteristics of eddy current clutch. Curves show relation of slip, torque and excitation.

Thymotrol is one of the newer drives and this new tool of the much publicized electronics field, does have remarkable versatility in speed and torque characteristics. It might be well at this point to review in our minds what we mean when we say constant torque and constant horsepower. Illustrations No. 8 and 9 give that relationship between torque and horsepower. Either of these conditions or a combination of constant torque and constant hp. may be achieved with this drive. Slide No. 10 shows the combination of units making up a Thymotrol power system.

The control for Thymotrol is stepless and requires only a few miliwatts for operation which makes it a natural for any instrument work. Its overall eff. is in the neighborhood of 64 to 70% and this holds up fairly well down to half speed and even below. The control panel is not available for Class I Gr. D locations because of the cooling problem, however the motors and push-button station are, and in most instances this is sufficient.

If we had a number of pumps, all requiring variable speed then more economical than the Thymotrol would be an installation of a Motor-Generator set to give you a source of DC and separate DC motors on each pump. In the past we have always thought of controlling a DC motor by means of a large unwieldy rheostat, usually manually operated, but with wide

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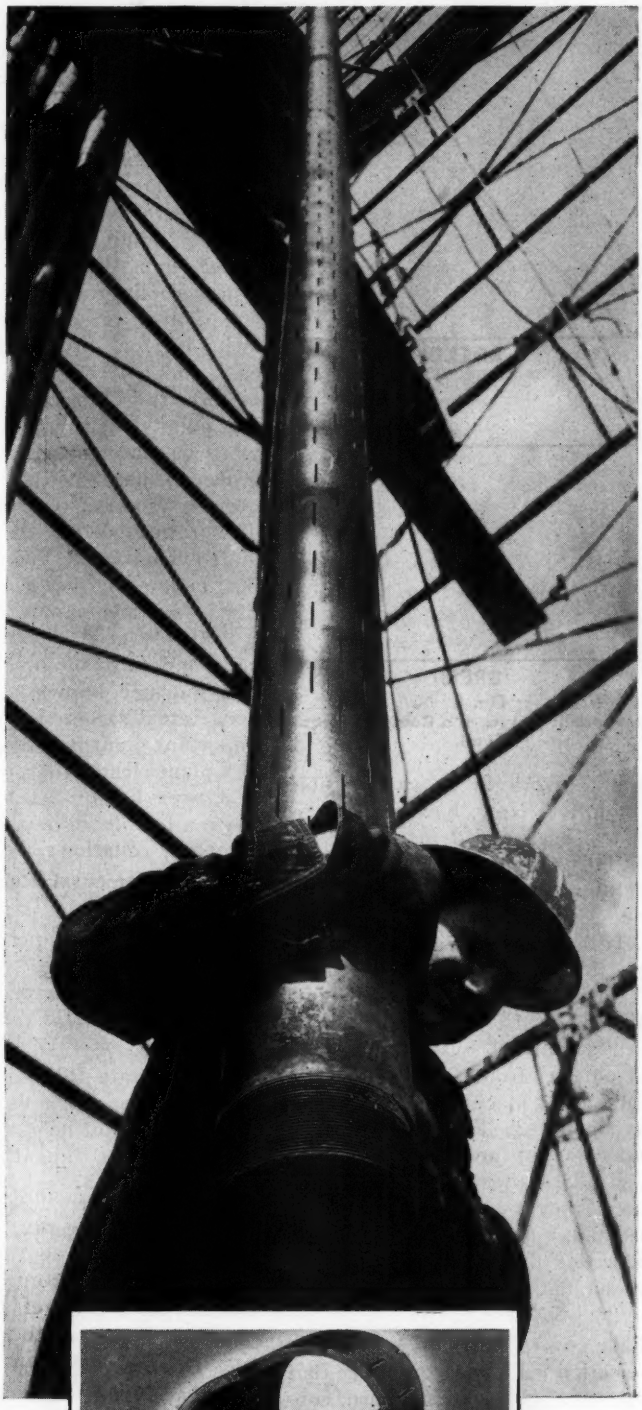

Kobe's patented method of slotting pipe heat treats as it cuts. Because of this, greater pipe strength is assured. Tests show Kobe slotted pipe retains at least 95%, and in many cases more than 100%, of the original blank pipe strength.

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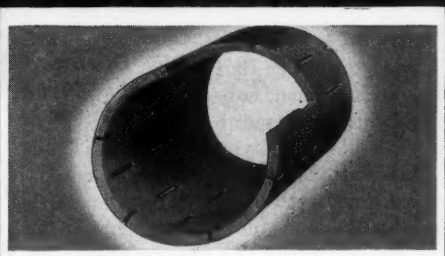

KOBE HEAT-TREATED SCREEN CASING is slotted to meet specific sand problems. Slots may be cut to required dimensions and arranged in any pattern to hold back sand particles and at the same time allow the free flow of oil.

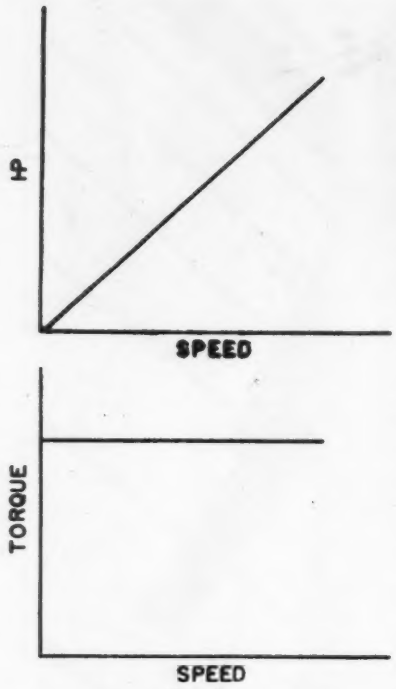

Fig. 8
Characteristic Curves of a Constant-Torque Load.

limits to work in it was possible to motorize. Now, however, a new tool has been added to replace the rheostat, this is a small motor-generator set known as an Amplidyne. The illustration on slide No. 11 shows a typical unit. Actually, this is nothing more than an extremely fast response especially designed DC generator which requires only 1 watt to change the output from zero to maximum and machines are available up to 25 kw. Use of DC motors is not new, but the tools which adapt them to the high accuracy control requirements of the present day are. Again one watt is well within the power limitations of any standard instrument such as Brown, L&N, etc.

This covers hurriedly the pump application field, and you notice that I have not spoken of standard, constant-speed motor centrifugal pump drives, for I am sure that all of you are aware of the various valves which can be used to throttle the discharge automatically as a function of some system variable.

One important service in NG plants which we have not mentioned yet is the water cooling system. Cooling towers, whether atmospheric or induced draft are an essential part of the process. In recent years more of the induced draft units have put in their appearance, partially as the result of space restrictions, and largely because of the need for closer temperature control. With natural draft towers change in wind velocity or direction is apparent in water temp. With ID towers variation in cooling rate to meet ambient conditions is accomplished by switching on or off of individual cells and also by using multispeed motors. It is interesting to note at this point that by learning the hard way we have found it is a wise move to use totally enclosed fan cooled motors on this service. The saturated air in the immediate vicinity of the tower does not make for the best insulation life in an open motor.

Probably at this point all of you are wondering how much there is to this monster known as electrification. Actually, there is only one more important point in the consideration of a plant electrical system, and that is Power Factor. I have written down a few definitions and one fundamental equation:

Fundamental Relations

V = volts
A = current (amperes)
P = Power
PF = Power factor
P = V x A X P.F. = VA x P.F.
Good beer = Q x P.F.

To illustrate this equation there is the classic example of a glass of beer. The full height of the glass represents the quantity of beer which flowed through the tap at a certain pressure. However, when the glass is laid on the bar let's say the top 20 percent of the glass is foam and the bottom 80 percent is good amber fluid. Therefore, we could say that our glass of beer has only 80% PF. Now we all know that this head varies and so does the PF in a plant.

Power is the only part of electrical energy which can accomplish useful work, so that is what we are interested in getting to the motor terminals. Looking again at the equation, we can assume that the voltage remains constant, and we might have tremendous currents going through our cables, but if the PF isn't high little turning effort is exerted at the other end. What is the importance of this phenomena? Just this, transformers, cable, and generators are rated on their current carrying ability and if large values of current are passed through these devices at low PF then we are not getting the work out of them we should.

Motors demand from a system, electricity or beer which is not 100% power factor, in fact, it is usually about 80% at full load. To correct this we install capacitors at or near the motor. Now in this next illustration, No. 12, is shown the value in the proper selection of induction motors. Anything under 100% of rated hp has drastic effects on motor pf and consequently this device draws much larger currents than it should for the work it is doing.

In conclusion, I think it might be well to mention the subject of Safety. Millions of dollars are spent annually in promoting better working conditions and it is natural that electrical equipment should be evaluated from this standpoint. First of all several organizations who set up the standards of equipment and installation which insure low accident records. These are the Underwriter's Laboratories, the National Electrical Code which is the standard of the National Board of Fire Underwriters, the State Electrical Code which is administered by the Div. of Industrial Safety, State of California, and the various city codes, such as Long Beach and Los Angeles. The state and cities are

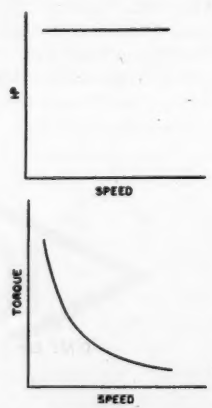

Fig. 9
Characteristic curves of a constant-horsepower load.

daily expanding their inspection departments for more thorough scrutiny of new installations. The requirements of these groups for explosion-proof joints (five full threads), explosion-proof fittings, approved sealing fittings wherever conduit terminates in enclosures where arcing or sparking is likely to occur, or where conduits leave a hazardous area, are all in the interest of maximum safety.

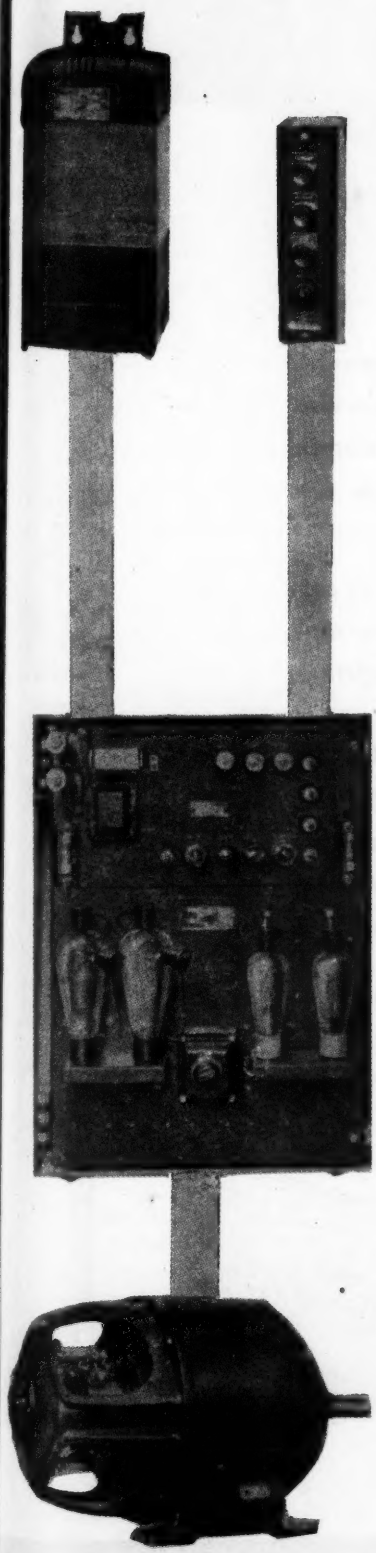

Fig. 10

Most of you have noticed lately in all plants handling gasoline that electrical conduit runs are encased in red concrete to protect against accidental damage by work crews.

I have here some of the Div. of Ind. Safety reports over the last few years, and reading over a few of them briefly will give us an idea of the natural gasoline plant accident trend.

Year 1939 — NATURAL GASOLINE PLANT—One man fatally burned.

A chemist was loading butane in a truck with an electric pump. The switch box, located outside of the pump building, exploded when switch was thrown off.

Year 1941 — NATURAL GASOLINE PLANT—One man fatally burned.

Explosion occurred in small gasoline pump house.

(b) GAS COMPRESSOR PLANT —Three men injured, one fatally.

A corroded underground pipe failed upon being uncovered, gas spread to compressors and entered air intake of one of the compressor engines, it speeded up and both the compressor engine flywheel and the compressor flywheel broke. Ignition of gases, cause not known but probably from sparks of bursting wheels, although other sources of ignition were probable.

(c) OIL REFINERY—Eight men burned, three fatally.

While breaking into a liquid butane line which had not been drained and may have been open, a large volume of butane was released and the vapors ignited at compressor room.

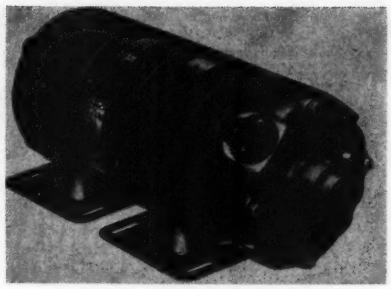

Fig. 11
Typical Motor-Amplidyne set.

(d) OIL REFINERY — One man burned, non-fatal.

While washing an overhead condenser shell of a deisobutanizer, a 100-Watt vaporproof light globe cover and the light globe were cracked with water from a hose and broke, allowing glowing filament to ignite vapors.

These electrical accidents are strong points in favor of adhering to the codes and their explosion-proof requirements.

The successful user of motors within a hazardous area is not particularly a matter of motor design, but depends largely upon the careful attention to such factors as (1) selection and careful maintenance of proper types and sizes of overload relays; (2) proper layout of the distribution system, and (3) choice of breakers with adequate interrupting capacity.

Gentlemen, if you don't feel like you've had your work for a BS in EE you should, for here in brief form we have attempted to cover the essentials of applying electric power to the operation of a natural gasoline plant.

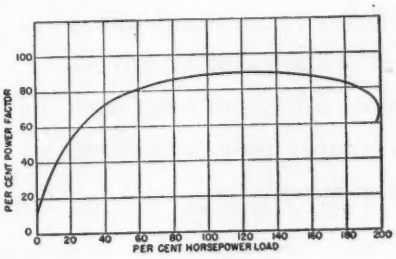

Fig. 12
Variation of Power-factor with Load for a typical induction motor.

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Field Development

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Los Angeles Basin

Well Reaming At Richfield

One of the most interesting drilling jobs in the Los Angeles Basin is Basin Oil Co.'s Stern No. 1 on a 500-acre lease south of the Richfield proper, which is credited with coring considerable formation showing oil. The hole evidently has been carried through the areal fault. Bottomed at 4719 ft., reaming is the latest word from the project.

Inglewood Try Rigging Derrick

Basin Oil Co. is rigging derrick to start the drill in its Standard-Brick No. 1 test in Sec. 28-2s-14w in the Inglewood area. T. P. Pike Drilling Co. is the contractor.

Montebello Test Prepares To Resume

Lodico Oil Co. is preparing to resume drilling operations at present depth of 5219 ft. in its North Montebello No. 1 wildcat in Sec. 35-1s-12w in the Montebello area. The Texas Co. has abandoned its Ciocca No. 1 at a redrilled depth of 8942 ft. Original bottom is 10,188 ft.

Rig Constructed For Whittier Try

Delaney Petroleum Co. has rig up for its Jones-Central No. 1 exploratory project in Sec. 24-2s-11w in the Whittier area. Gibson Drilling Co. will be in charge of drilling.

Bernardino Try Drilling Ahead

In the Chino Hills area of San Bernardino County, C. W. Ginter & Associates is making drilling progress below 2400 ft. with Kraemer-Backs No. 3 in Sec. 33-2s-8w. Grayco Oil Co. is rigging up Mahala No. 1 in Sec. 13.

La Habra Job Going Deeper

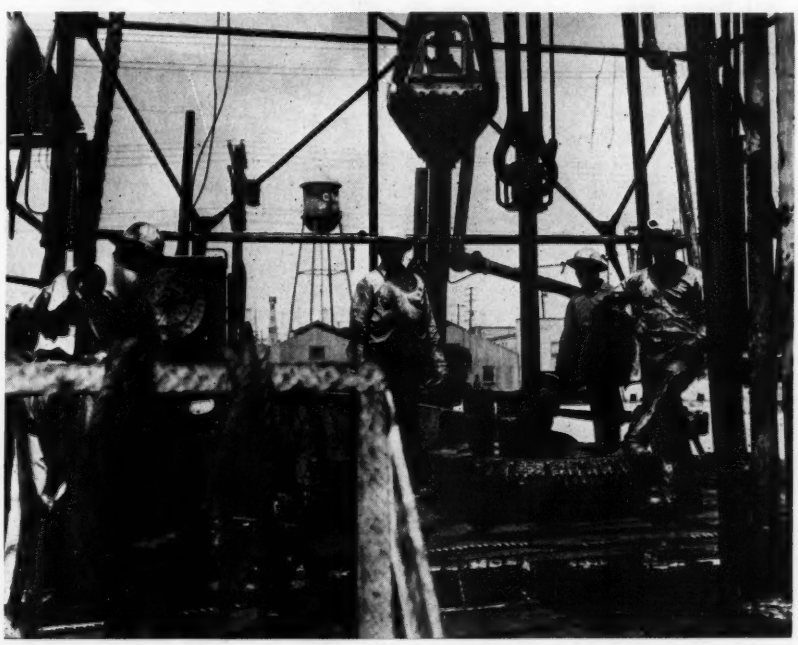
Standard Oil Co. is drilling ahead and spot coring at 10,915 ft. with Stern Comm. No. 2-1 in Sec. 7-3s-10w in the La Habra area of Los Angeles County.

Rig Up For Pico Wildcat

Rig is up for Union Oil Co.'s Culp No. 1 test in Sec. 7-2s-11w in the Pico area, Los Angeles County. The well will question an area rich in California history and the home of Pio Pico, the last Mexican governor of the state.

La Mirada Test Sets Surface Pipe

General Petroleum Corp.'s La Mirada Comm. No. 46-1 in Sec. 16-3s-11w is standing cemented with 13⅜-in. surface casing set on bottom at 1037 ft. The project is situated west of Buena Park and north and west from the company's Librown No. 1, a small pumping well. Drilling is in charge of Loffland Bros. Co.



A crew of the O. L. Riley Company, drilling contractors, in the process of deepening Larson Well No. 2 in harbor area. Left to right: Driller L. E. Harley; W. D. Taylor, Cathead Man; Bud Hearst, Lead Tong; E. T. Dean, Pipe Racker; Jack Cope, Derrick Man was up on top.

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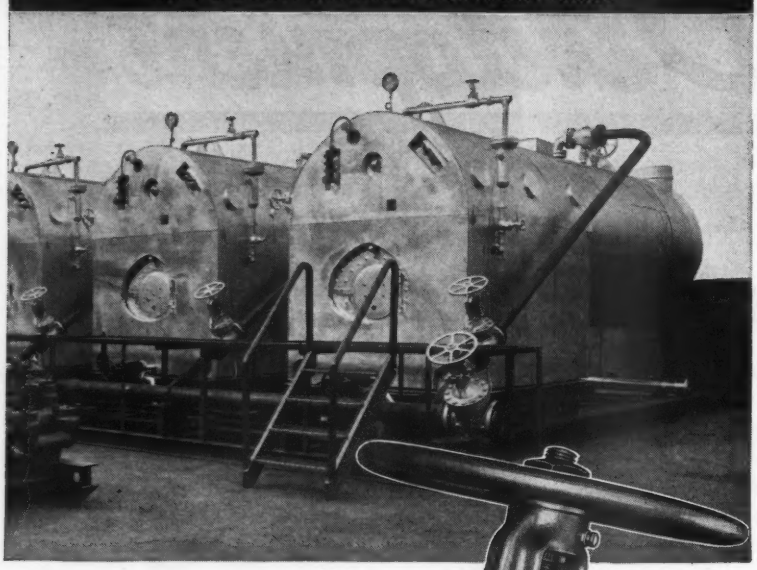

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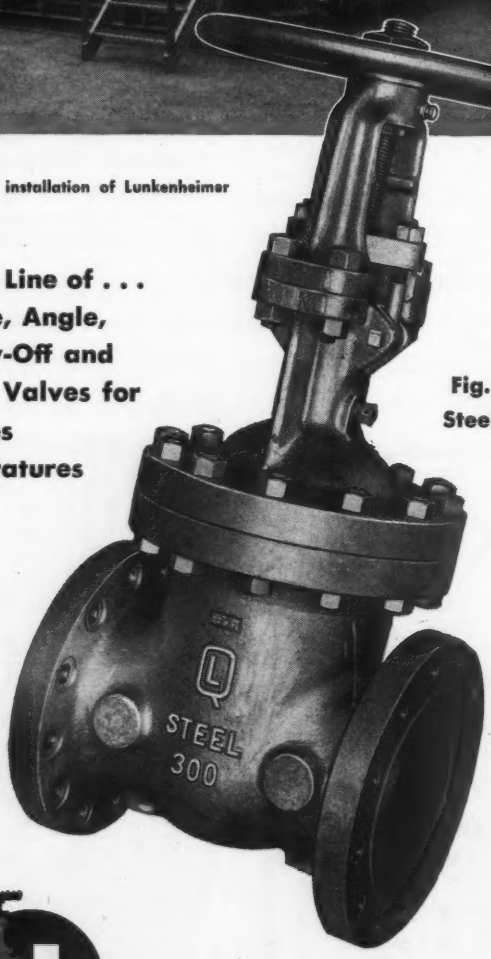

Fig. 1938 Steel Gate

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Leffingwell Area To Be Tried Anew

Rothschild Oil Co., producing and marketing organization, is building rig for its East Santa Fe Springs Comm. No. 1 in Sec. 10-3s-11w in the Leffingwell area. Severns Drilling Co. has the drilling contract.

Workover Planned For Rosecrans Well

Midfield Corp. plans to reperforate and recomplete the old Midfield Oil Co. No. 1 well in the Rosecrans field. M. Murdock heads the company.

Gardena Prospect Drills On Down

West of Gardena, British-American Oil Producing Co. is drilling ahead below 7200 ft., with Texas-Bodger No. 1 wildcat in Sec. 22-3s-14w. Work is in charge of Severns Drilling Co.

Santa Fe Springs Try Working Over

Carmenita Comm. No. 1, an old hole in Sec. 4-3s-11w in the Santa Fe Springs area, is being conditioned by Standard Oil Co. preparatory to carrying the well on down from present depth of 8060 ft. Surface casing set at 995 ft. is being repaired.

Huntington Beach Discovery Looming

Wildcat ground about one mile east of the Huntington Beach field appears to be on the verge of becoming the scene of a new discovery of considerable importance. This development is due to performance to date of A. W. Lyddon, Operator, Anaheim Sugar No. 7-1 in Sec. 7-6s-10w, which on test of the "C" zone recovered substantial amount of 28 gravity oil. Total depth is 6930 ft., with hole bridged at 5550 and casing cemented at 5500 ft. Liner has been run and the well now is in the completion stage.

The Lyddon interests apparently have all the ground immediate to the test, which embraces more than 4500 acres. The well, located two miles south of the town of Talbert, will open a wide area to new testing, providing expectations are realized.

El Segundo Well Testing Shut Off

Having cemented 7-in. casing at 6875 ft., Shell Oil Co. is testing water shut off in Six Companies Fee No. 1 in Sec. 2-3s-15w, northwest of the El Segundo field, adjacent to Mines field. On formation test of the interval of 6862-6939 ft. and open 62 minutes, recovery was 3000 ft. heavy muddy oil—reported 12.5 gravity—to heavy oil, with 100 ft. of mud on bottom. Total depth is 6939 ft. with plug at 6880 ft.

Ohio Oil Quits Gardena Wildcat

Efforts of Ohio Oil Co. to make a producer out of its second explorer in the Gardena area were without avail and the project has been abandoned officially at a total depth of 10,288 ft. Known as Gardena Comm. No. 4-1 and located in Sec. 23-3s-14w, oil formation in the well evidently was encountered somewhat higher than in the first try. Water difficulties, however, that wrote an end to the earlier drilling job, brought about abandonment of this more recent well.

Drilled and cored to a total depth of 10,288 ft., the well was subsequently plugged to 10,040 ft. Casing is set at 9100 ft.

There is little doubt but that Ohio found oil in quantity in both explorers. Encroachment of water, however, parallels experience of many other wildcats drilled below 10,000 ft. in Los Angeles County areas, which invariably failed to live up to the commercial standards. A scattered few wells in the county are producing from oil sand below 10,000 ft., but at a rate of only a few barrels of oil a day.

East Los Angeles Work Continuing

C. C. M. O. Co., Bandini No. 1 in Sec. 21-2s-12w in the East Los Angeles area is drilling ahead and spot coring at 12,010 ft. No hole in the area to date has exceeded this depth.

Richfield Oil Corp., meantime, is coring Vail No. 2 in Sec. 16-2s-12w at 9045 ft. On formation test of the interval of 8816-8836 ft., open 26 minutes and packer failed, net rise was 675 ft. of gas-cut muddy water. Keller No. 1 is reaming at 8920 ft., a prelude to tests. Total depth is 9001 ft. Edison No. 1 is fishing formation tests, with bottom at 8000 ft.

C. G. Willis last was reported spot coring at 8783 ft. with Simmons No. 1 in Sec. 15-2s-12w.

Beach Venture Making Tests

With bottom plugged at 3860 ft. and water shut off approved on casing set at this point, Signal Petroleum Co. of Calif. is conducting conventional trials of its Callen's No. 1 wildcat test in Sec. 18-6s-10w in the Huntington Beach area.

Barnhart - Morrow Consolidated has location for Callen's No. 1, an offset job in the section. L. & W. Oil Co. has foundation in for No. 1, approximately 135 ft. south and a like distance west of the northeast corner of the Surf lease in Sec. 18.

Wilmington Well Tests Promising

Bankline Oil Co.'s U. P. No. 7, an extension test in the Wilmington field, has recorded a number of encouraging formation trials. Tests between depths approximating 5700 and 5900 ft. indicated a well of satisfactory proportions. Bottomed at 6147 and with casing cemented at 6026 ft., the well now is undergoing tests of the deeper zones. U. P. No. 4 is drilling below 4250 ft.

Long Beach Oil Development Corp. is drilling W-123 at 300 ft. Richard A. Larson has reached a depth of 6050 ft. in Larson No. 2, with the 237 zone reported absent at this location. Hancock Oil Co. is redrilling Harbor No. A-3 at 4000 ft., and is drilling No. A-19 at 4030 ft., No. A20 at 5067 ft., Harbor B No. 29-A at 5229 ft., and No. 31 at 3250 ft. V. R. G. Wilbur is preparing to build rig for Prosperity No. 1.

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Long Beach 42403

Del Valle Well Pump Completion

Superior Oil Co. and British-American Oil Producing Co. have placed their Black No. 3 in Sec. 13-4n-18w in the Del Valle area on the pump for 108 barrels of 24.4 gravity oil a day from 3983 ft. The Texas Co. is ready to swab its Kern No. 13-SW-18 in Sec. 18. Total depth is 4188 ft. Bankline Oil Co. is making steady progress at 2500 ft. with Black No. 104 in Sec. 13. R. E. Havenstrite, Operator, is fishing drill pipe in Barnes No. 8, bottomed at 5180 ft. Herley-Kelley, Handy No. 1 is making hole ahead at 2000 ft.

Brea Wildcat Cleaning Out

El Rancho Exploration Co. is cleaning out its El Rancho No. 1 test job in Sec. 30-2s-9w in the Brea area, Los Angeles County, with the hole bridged at 1853 ft. Total depth is 2336 ft.

Mission Explorer Drills at 3900 Ft.

Seaboard Oil Co. is drilling Mission Land No. 8-1 in Sec. 25-3n-16w in the Newhall area at 3900 ft. Location falls a short distance from San Fernando Mission.

Severns Plans Coyote Project

Severns Drilling Co. has made location for No. C-8 in the East Coyote field. Ogle, Inc., has placed Mathes No. 2 on the pump for an unestimated yield from 4240 ft

Seal Beach Well Gives Up

Shell Oil Co. is drilling Bryant-Two No. 3 in the Seal Beach area below 9700 ft. in sand and shale. Community No. 1, meanwhile, has been abandoned.

Coastal and Northern District

San Ardo Wildcat Exploring On Down

C. C. M. O. Co.'s San Ardo No. 6-G-1 wildcat in Sec. 6-23s-10e in the San Ardo area of Monterey County is drilling ahead below 3850 feet in shale, without reported showings of oil or gas. Two miles eastward, The Texas Co. is drilling Aurignac No. 1 in Sec. 4-23s-10e at 1700 ft. Operations in recent days have been accompanied by circulation troubles.

Piru Try Suspended

R. E. Havenstrite, Operator, has suspended operations at a depth of 3479 ft. in Lisk No. 1 wildcat test in Sec. 15-5n-18w in the Piru area of Ventura County. In Sec. 19-4n-18w, C. W. Ginter and Associates' Warring No. 1 is idle at 2652 ft. Near Fillmore, Firestone Oil Co.'s O'Leary No. 1 in Sec. 29-4n-20w is inactive at 1506 ft.

Casitas Test At Critical Depths

Continental Oil Co. continues to explore ahead at a depth of 10,450 ft. with Casitas No. 2 in Sec. 7-3n-23w in the Red Mountain area of Ventura County, without official intimation of what may have been uncovered of oil interest to date.

Shell Adds Capitan Well

Shell Oil Co. has completed another well in the third zone of the Capitan field in Santa Barbara County. It is Covarrubias No. 1-48 in Sec. 32-5n-30w, bottomed at 3913 ft., and flowing 163 barrels of 39.8 gravity crude and 1,020,000 cubic feet of gas a day.

Trio Active At Elwood District

Signal Oil & Gas Co. has three drilling jobs at various operational stages in the Elwood field, Santa Barbara County. State No. 129-11 is drilling at 3900 ft., No. 208-2 is rigging to pump from 4805 ft., and No. 208-3 is ready to spud.

Gato Ridge Job Drills

Quincy Cass Associates is drilling Arata No. 2 in Sec. 4-8n-32w in the Gato Ridge field below 3800 feet. Barnsdall Oil Co. is grading for Tognazzini No. 17 in the section, and is running electric log in Maggenheimer No. 3, bottomed at 3900 ft.

San Miguelito Well Flowing

Continental Oil Co. continues to complete excellent producers in the San Miguelito field. Its latest success is Grubb No. 44-2 in Sec. 24-3n-24w, completed flowing 950 barrels of 18.4 gravity crude oil daily, through a 64/64 to 35/64-in. bean, along with 479,000 cu. ft. of gas. Total depth is 8622 ft.

Fillmore Job Mills Window

Los Nietos Co., which is making a return visit to Standard's Elkins deep hole, is milling window in the 9⅝-in. casing in the well at 4400 ft. The well, located in Sec. 6-3n-19w, was carried by Standard to 13,321 ft., before quitting the search.

Surface Pipe In Goleta Try

Ohio Oil Co's. Prevedello No. 1, a wildcat in the Goleta area in Sec. 1-4n-28w, Santa Barbara County, is standing cemented with surface casing set on bottom at 747 ft. Ralph M. Parson Co. is the drilling contractor.

Camarillo Test Ready To Start

The Texas Co. has location staked and is ready to start work on its Broome No. 1 wildcat test in Sec. 29-1n-20w in the Camarillo area, Santa Barbara County.

Union Sponsors Wildcat Brace

In the Sisquoc area, Union Oil Co. is drilling its Sisquoc No. 6 test in Sec. 2-8n-31w at 330 ft. in sand and shale. In the Casmalia area, Escolle No. A-1 in Sec. 28-9n-34w is spot coring at 4550 ft.

South Mountain Try Drills Ahead

More than ordinary attention is being given D. D. Feldman's Richardson Estate No. 1 in Sec. 14-3n-21w in the South Mountain area of Ventura County, which is credited with coring oil sand around 3500 ft. Gas pressure was reported of sufficient strength to call for weighing mud additionally from 70 to 84 pounds. An upper oil sand measure also was found near 2580 ft. Location falls about 1½ miles west of the South Mountain field proper and one-half mile north of Free Fairfield's Converse No. 1. The Fairfield organization is ready to start work on a new drilling job on the South Mountain Lemon Co. lease.

Casmalia Job Running Liner

Bell-Casmite Oil Co. is ready to run liner in its Morganti No. 6 in Sec. 13-9n-35w in the Casmalia field of Santa Barbara County, following an electric log survey. Drilled to a total depth of 5697 ft., formation tests of a number of intervals were conducted between 5276 and 5594 ft., with recovery mostly mud. Hole is now bridged at 5417 ft.

Gaviota Try Grades Ground

The Barnsdall-Honolulu Oil Co. combination is grading ground for Petan No. 1, an exploratory project in Sec 5-5n-32w in the Gaviota area of Santa Barbara County.

Humboldt Oil Try Prospecting Ahead

In the Eureka area of Humboldt County, where The Texas Co. is trying for oil, its Holmes-Eureka No. 3 in Sec. 22-3n-1w is making steady progress below 1200 ft. Surface casing was set at 1100 ft.

Superior Spuds Tehama Explorer

Near the town of Corning in Tehama County, Superior Oil Co. has spudded and is drilling its Saldubehere No. 2 in Sec. 35-24n-3w around 1500 ft. This well seeks to dupli-

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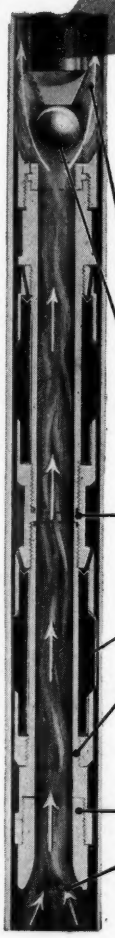

PATTERSON-BALLAGH'S new DEEP WELL SWAB is a true champion. It came up the hard way, licking one field problem after another through months and months of the toughest tests. *Now*, it is ready to take on all comers. When it comes to swabbing this new Deep Well Swab is a winner! *Developed by production men, it does the job production men want when swabbing.*

Large fluid passage clearances permit free dropping. Pulls either light or heavy loads from great depths without fluid loss, brings a complete load each trip. Sensitive, special rubbers expand under light load, proper cup support keeps them in place under heavy load. Easily adjusted to irregular I.D.'s of tubing and to compensate for wear. Simple design, made of standard parts in both tubing and casing sizes, easy to operate on rig floor, quickly tandemed. *A deep well Swab that really cuts swabbing costs.*

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- All parts rust-proofed per rigid Navy specifications.
- Break here to tandem Swab.
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cate gas production already developed in the area by the company. North Counties Development Co. is drilling Brush Creek No. 1 in Sec. 31-27n-5w in the Blossom area at 2350 ft.

General Petroleum Adds Sta. Maria Well

General Petroleum Corp. has completed its J. E. O'Donnell-Defense No. 3 in the Santa Maria Valley field, pumping 258 barrels of 16 gravity oil in 20 hours from 5100 ft.

Union Plans New Orcutt Job

Union Oil Co. has foundation in for Newlove No. 53 in Sec. 25-9n-34w in the Orcutt field, Santa Barbara County. Squires No. 28 in Sec. 23 also has foundation poured.

Madera Wildcat Play Developing

On 6000 acres of leases northwest of the Moffatt gas field in Madera County, Lowry Lytle and Associates plan to drill a wildcat in search of gas. Definite location awaits completion of geological survey now under way.

Dixon Gas Test Plugs

Amerada Petroleum's Winship No. A-1 wildcat in Sec. 15-6n-2e in the Dixon area of Solano County is plugging at 4750 ft. after running electric log of the hole, bottomed at 5000 ft. Millar Comm. No. 3 in Sec. 12 is shut in.

Tip Top Try Starts Drill

In the Tip Top area of Ventura County, L. M. Lockhart has spudded Macrate No. 1 in Sec. 27-4n-23w and at last reports was making fast time in surface formations. The drill site is on the Rancho Riva.

Bardsdale Jobs Standing Idle

San Marino Oil Co.'s Elkins No. 2 and No. 3 are standing idle at 3800 and 3633 ft., respectively. In the Ojai area, Volunteer Petroleum Corp.'s M. & L. No. 1 and Pyramid No. 1 are idle in shallow formations. Triangle Oil Co., Ojai No 1 also is inactive at 1810 ft.

San Joaquin Valley

Antelope Try Standing Idle

William Bros. Oil Co., Layman No. 4 in Sec. 7-28s-20e in the Antelope Hills area of Kern County is idle at a plugged depth of 981 ft. Total depth is 1082 ft. Wilshire Oil Co.'s Layman No. 1 in Sec. 18-28s-20e has been converted into a water well, good for about 250 barrels of aqua daily from a total depth of 1226 ft. Layman No. 3, pumped oil along with considerable water and efforts are being made to squeeze shoe of casing at 1170 ft. Total depth is 1220 ft. Layman No. 4 in the section probably will start work shortly.

McDonald Anticline Slim Hole Rigging

On the McDonald anticline, Kern County, The Texas Co. is rigging to start the drill in Theta No. 2-1, a core hole job in Sec. 2-28s-29e.

Buena Vista Tries Continue Searches

Near Buena Vista Lake, Seaboard Oil Co. is redrilling at 10,750 ft. in hard shale in its SWUM-BVA No. 73-14 explorer in Sec. 14-32s-25e. Original depth is 11,495 ft. Meantime, Continental Oil has reached 4800 ft., with BVA No. 1 in Sec. 8.

Jasmine Test Hits Gray Sand

Pacific Oil & Gas Development Corp. has drilled and cored its Cantleberry No. 72 in Sec. 22-25s-27e in the Jasmine area of Kern County to a bottom of 2719 ft. in gray sand. Although the Vedder was cored, top apparently was not definitely located.

Middle Dome Try Still Fishes Pipe

In the Middle Dome area of Ketteman Hills, Standard Oil Co. is still fishing for drill pipe in its Eocene test in Sec. 30-23s-19e, Kings County. Top of fish is placed at 7600 ft.

Trico Job Preparing

Standard Oil Co. is moving in equipment for its Discombe Comm. No. 1 in Sec. 1-24s-22e in the Trico area of Kings County.

Pyramid Hills Job Drilling

In the Pyramids Hills of Kings County, where considerable shallow production has been developed, Ridge Petroleum Corp, is drilling in shale at 400 ft. with its well No. 13 in Sec. 17-24s-16e.

Kern Front Try Ready For Pipe

Bender Oil Operations, Claire No. 2 in Sec. 22-28s-28e in the Kern Front area is ready to run 7-in. pipe to set at 2732 ft., after the well was drilled and cored to a total depth of 2761 ft. The Vedder, topped at 2730 ft., was all oil sand, except one foot on bottom.

Gilmour Adds Edison Producer

L. S. Gilmour & Associates' Neff No. 1 in Sec. 6-30s-29e in the Edison area has been recompleted, pumping 34 barrels of 19 gravity oil a day from 4644 ft. McKendree No. 37 in Sec. 11-30s-28e at Mountain View is coring Transition zone at 4725 ft.

Tulare Test Awaits Pipe

Kings County Oil Co.'s Von Glahn No. 1 in Sec. 4-23s-22e in the Tulare Lake area, Kings County, has been carried to a depth of 12,014 ft. and is awaiting casing. Severns Drilling Co. is contractor. In the Reef Ridge area, Kings Exploration Co.'s Avenal No. 1 in Sec. 18-23s-17e is redrilling below 2200 ft.

Fruitvale Test Runs Electrolog

With hole bottomed in oil sand at 3463 ft., National Iron Works last

Pike Drilling Company preparing to set pipe into Schist Zone on UP-3 well for Bankline Oil Company. Shown in photo, left to right: Guy Stacy, Pipe Racker; Bill Parry, Driller; W. M. Kennington, Cathead Man; C. J. Flesner, Lead Tong.

was reported running electric log in its Galtes No. 1 in Sec. 14-29s-27e in the Fruitvale area.

Comanche Point Wildcat Deeper

Having deepened Tejon No. 6 in Sec. 32-12n-18w in the Comanche Point area of Kern County from old depth of 3541 ft. to 3556 ft. in granite, expectations are that the operator, G. B. Finch Oil Co., Ltd. will give the project up as an oil failure.

Devils Den Try Listed For Tester

With bottom of the hole in silty shale at a depth of 1787 ft., Barnsdall Oil Co.'s Bates No. 3 in Sec. 20-25s-19e in the Devils Den area is scheduled to next run tester. Oil shows were picked up from slightly below 1700 ft. to bottom.

Belridge Try Digs On Down

Belridge Oil Co., No. 62-W-33 in Sec. 33-28s-21e in the South Belridge area has 12,050 ft. of hole to its credit. Richfield Oil Corp. plans a seismograph survey of a lease block of 2400 acres of leases in the field, a prelude to a deep drilling job in a location tentatively selected in Sec. 30-28s-21e. The company, together with Universal Consolidated, Lincoln Petroleum and Berry Oil, have pooled acreage to expedite a deep explorer. Other property participants in the area include Standard, General Petroleum and Ohio Oil.

Belridge Test Oil Failure

Lehman No. 1, sponsored by Wilshire Oil Co. in Sec. 18-28s-20e in the Belridge area of Kern County has been given up as a production failure at a total depth of 1226 ft.

McKittrick Well Plans Higher Tests

W. T. Woodward and American Placers, Inc., plan to plug and test higher in Flickinger No. 1 in Sec. 36-30s-22e in the McKittrick area, after the well flowed an estimated 50 barrels of salt water daily. Total depth is 6896 ft., with present plug at 6556 ft.

Tipton Test Lacks Showings

Having found no showings of interest, Union Oil Co. has abandoned its Griffin No. 45-6 prospect job in Sec. 8-22s-26e in the Tipton area of Tulare County. Hole is bottomed in slate at 3746 ft., top of which is placed at 3728 ft.

Rig Built For Desert Explorer

Amapola Oil Corp. has derrick built for No. 1 wildcat in Sec. 6-6n-12w near Lancaster in Antelope Valley, Kern County. The valley in recent months has been the scene of test wells, which evidently found interesting showings, but of the sub-commercial variety.

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THIS LAUGH

OFF!!

Lawyer: "Then you say this man was drunk?"

Witness: "I do not; I simply said he sat in his car for three hours in front of an excavation waiting for the light to turn green."

Service Manager: "Been to the zoo yet?"

New Delivery Boy: "No, sir."

Manager: "Well, you should. You'd enjoy it and get a big kick out of watching the turtles zip by."

The salesman whose pants wear out before his shoes is making too many contacts in the wrong places.

Dear Old Lady: "Little boy, does your mother know that you smoke?"

Junior: "Listen, lady, does your husband know you speak to strange men on the street?"

A clergyman was being shaved by a barber who had evidently become unnerved by a previous night's dissipation. Finally he cut the clergyman's chin. The latter looked up at the barber reproachfully and said:

"You see, my good man, what comes of hard drinking?"

"Yes, sir," the barber replied consolingly, "it sure makes the skin tender, don't it?"

Macgregor had invited his friend Macpherson to have a drink.

"Say when," he said, and poured a wee drop into the glass.

Macphersion was silent. Cautiously Macgregor poured out another drop, and there was silence again.

"Did you hear about the fire at the mill?" said Macgregor suddenly.

"When?" said Macpherson, innocently.

Macgregor put the bottle down with a sigh of relief.

Junior and his mother were looking through the old family album. "And here," said his mother, "is your Aunt Susie, there's Uncle Bert and there's Grandma."

Presently they came to a picture of a handsome young man with a moustache.

"Who's that?" asked Junior.

"Why, that's your father," said Mother proudly.

"Yeah?" said Junior skeptically. "Then who's that bald-headed guy who's been living with us?"

He: "Go ahead. Tell me about myself."

Fortune Teller: "You're a married man."

He: "Right."

Fortune Teller: "You're the father of three children."

He: "That's where you're wrong. I'm the father of four."

Fortune Teller: "That's what you think."

A gal applied for a job and was sent to the personnel department, presided over by a handsome young man at a big desk. She was given a form to fill out and retired to a corner table with it.

Most of the blanks she filled out without great difficulty, but presently he noticed that she seemed to be having trouble with one question. She looked at him furtively, chewed her pen, then carefully wrote a word or two and brought over the card.

He looked it over carefully—name, age, address, telephone number; then a space which said: "Sex——" Here she had written: "Occasionally."

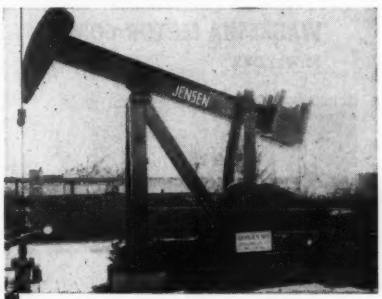
"You say you haven't anything to be thankful for?" said the clergyman. "Now look at your neighbor Hanford, who has just lost his wife by pneumonia."

"Well, that don't do me any good; I ain't Hanford."

Ed: "A burglar got into my house at 3 a.m. when I was on my way home from the club."

Fred: "Did he get anything?"

Ed: "He certainly did. My wife thought it was me."



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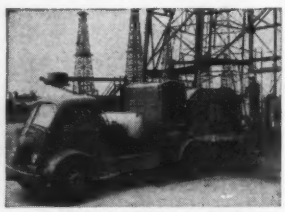
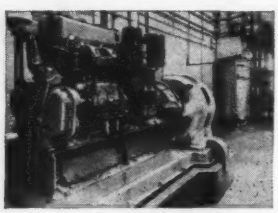


Well Servicing Engines, **butane, natural gas, gasoline, or diesel fuel; range between 75 hp. and 210 hp. for portable truck-borne power units.**

Well Pumping Power Units, **enclosed, weatherproof; 10 to 210 hp.; natural gas, butane, gasoline, diesel fuel; need only periodic inspection.**



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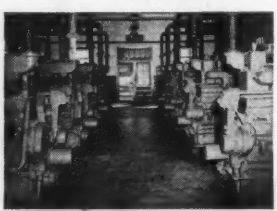

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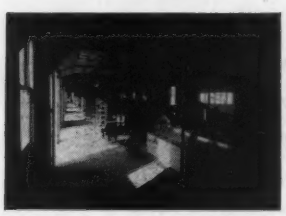

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Cycling Plant Engines, **ranging to 409 hp. at 1050 rpm.; natural gas, butane, gasoline, and diesel fuels.**

Big Nomads Party Planned

Many oil men from all over California will be guests of the Nomads at the Seventh Annual Wing Ding to be held at the Riviera Country Club, Pacific Palisades near Santa Monica on Friday, July 26th, 1946. This is the big summer event of the Los Angeles Chapter of Nomads and will include a Golf Tournament, a dinner and elaborate floor show.

The event opens with a Golf Tournament which starts at 10 a.m. and will continue until 4:30 p.m. This is a blind bogey affair and eight prizes will be awarded to the winners.

After the golf tournament and before dinner, "games of skill" will be indulged in by the Nomads and guests. When each person enters the gaming room he is to be furnished with stage money with which to play. At eight o'clock the winnings will be checked in and those with the greatest accumulations of stage money will be awarded prizes.

Dinner will be served at 8:15 and during this time the various prizes will be awarded. In addition to the golf prizes and those won at the gaming tables, there will be several door prizes. The awards will be distributed by an attractive young lady. During the dinner hour there will also be music; and probably some barber-shop chords will be rendered by those with good voices and small appetites.

The floor show will start at 9:30 and will be the closing event of the day. It will go strong on comedy and there will be quite a bit of audience participation.

Committee in Charge of Arrangements

The event is being handled by the Wing Ding Committee, which consists of the following:

Wallace Sawdon, General Chairman.

Billy McGraw, in charge of finance.

Dan Duncan, in charge of tickets.

Lee Laird, in charge of prizes.

Golf Committee:

L. George Trembley, Chairman,
H. J. Schlarb,
W. A. Wilson.

Games Committee:

Ray Humphreys, Chairman,
Ralph Beall
Earle Boggess,
Lew Bronzan,
H. K. Browning,
Larry Coker,
Norman Dorn,
Glenn Henderson,
Owen Lake,
Bud Landis,
Pete Maxfield.

Bill Bettis, president of the Los Angeles Chapter of Nomads, is ex-officio member of the Wing Ding Committee, and has helped in the planning. Jim Robinson and Fred Tyler, who served on previous committees, have also been of great assistance.

Petroleum Production Pioneers Barbecue on July 20th

The third annual barbecue and picnic of Petroleum Production Pioneers will be held on July 20th at the Murphy - Whittier picnic grounds of Standard of California, according to an announcement by J. E. Gosline, president, yesterday.

This is the same location where the two previous, successful barbecues have been held.

Petroleum Production Pioneers now has a membership of over 450, representing veterans of the production, oil well equipment, and related purchasing branches of the industry in California with a 20% representation of younger active men to do the work.

Details of the program are in the hands of Lou Bronzan and will be announced later. The "Gay Nineties" theme will prevail.

History of Organization

The formation of a production pioneers' association was first broached at an informal luncheon, late in 1943, at which were present Henry Grinnell, Lou Bronzan, and Glenn Merkley. The idea came out of a blue sky, but the more it was discussed, the more enthusiastic the trio became; and before they parted, they had scheduled another lunch to develop the matter further. There was no less interest at this second meeting and it was finally agreed that a larger representtaive group should be gathered together to test a more general reaction.

This meeting was held at the Los Angeles Athletic Club on January 26, 1944, with Henry Grinnell presiding. Approximately forty oil field operators and equipment men were in attendance. The basis idea as presented by the chairman was unanimously endorsed and an organization committee was designated to draft a plan of action. One month later, the organization committee formulated its report. Briefly, it recommended two types of membership — Pioneers and Juniors —with tentative qualifications for each; and it especially stipulated that the responsibility for meeting arrangements and all other chores rest solely with the Juniors. The plan was presented to a general meeting on March 30, 1944, was accepted, and Petroleum Production Pioneers became a duly instituted and soundly established organization.

With Henry Grinnell as president, and Lin Little as honorary president (representing the Pioneers), the first two years of existence were largely devoted to simplification and clarification of association constitution and by-laws; the shaping of plans and policies; and a series of very interesting gatherings at which many petroleum pioneers enjoyed that congenial atmosphere and companionship found only where old-time oil men convene. During this preliminary period of growth, the membership increased steadily from the original three to a robust three hundred and included many men who had played significant roles in the foundation and early development of the California petroleum industry.

From January, 1946, to the present time, the organization has been under the presidency of J. E. Gosline, manager Southern District Producing Department, Standard of California, with F. F. Hill, former director of production for Union Oil Company, as honorary president. Approximately 150 new members have been added to the first six months of the year despite the stringent qualification requirements; and all the aims of the organization have been advanced in a substantial way. This is especially true of the historical and biographical compilations which are regarded as a major objective.

New Unit for Standard's El Segundo Refinery

Plans for construction of a $2,250,000 crude distillation unit at its El Segundo refinery have just been announced by Standard of California, following Federal approval of the project.

The unit will have a capacity of approximately 30,000 barrels daily. It will handle the first step in distillation and its modern processes will increase utilization of the crude.

Construction is scheduled to begin in September, with completion set for early 1947.

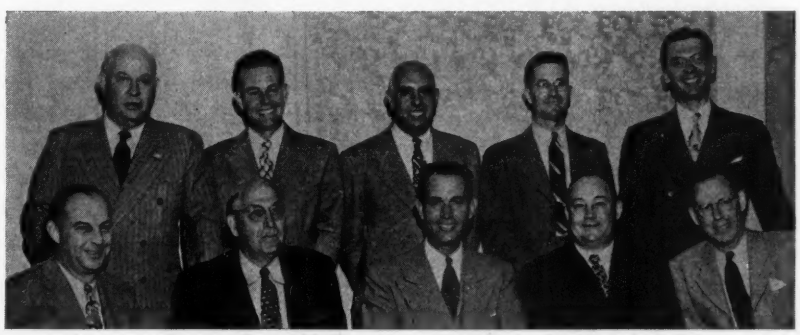
Brown Instrument Co. Announces Personnel Changes

J. W. Weingartner has been made production control manager of the Brown Instrument Company, Philadelphia, it was announced by Marshall B. Taft, assistant to the president.

Mr. Weingartner has been with this industrial division of Minneapolis-Honeywell Regulator Company for the past 22 years. He will also direct purchasing.

Charles Goodman has taken over the duties of purchasing agent under Mr. Weingartner's supervision and William Lawson has been named assistant production control manager.

Tractors and stationary gasoline engines use more grease and lubricant per pound of motor fuel than do cars and trucks.



The Executive Committee of the Petroleum Production Pioneers—left to right—(top row) E. B. Fowks, T. A. Atkinson, J. J. Siegel, E. W. Webb, B. Bronzan. (Bottom row) S. H. Grinnell, F. F. Hill, J. E. Gosline, T. Sutter, R. Sneddon. Following members of the Committee were unable to be present: Lin Little, L. G. Trembley, O. W. Morgan, Jr., C. S. Perkins, A. S. Hayes, W. R. Guiberson.

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Gordon Z. Greene

Oil Man Undertakes New Valve Promotion

Gordon Z. Greene recently became affiliated with The Electric Steel Foundry Company of Portland, Oregon. He will be in charge of the ESCO Duoseal Valve sales program with headquarters at Los Angeles, offices at 4600 Pacific Boulevard.

Gordon Z. Greene is widely known in the Petroleum Industry. He was a gas engineer for Tide Water Associated Oil Co. for 13 years, was Pacific Coast Sales Manager for the Robinson Orifice Meter Company for 10 years. He is a member of the California Natural Gasoline Association, Southern California Meter Association, Pacific Coast Gas Association, and American Petroleum Institute.

Gordon has assisted in the development and sales of the ESCO Duoseal valve for some time and believes it will receive enthusiastic approval by the industry in services heretofore considered difficult or impossible. The ESCO Duoseal valve is a full round opening cylindrical plug valve and employs a neoprene-lead packing to facilitate a positive shut-off at extreme pressures.

Oil Accountants Name Officers

John P. Vezzetti, vice president and treasurer, Sunset Oil Co., has been elected president of the Petroleum Accountants Society for the 1946-1947 fiscal year. Other officers elected are: first vice-president, K. D. Vandervort, Amerada Petroleum Corporation; second vice-president, John F. Baumgaertner, Ohio Oil Co.; secretary-treasurer, E. C. Rogers, Union Oil Co. of California.

John P. Vezzetti

Recently the Society elected as directors for a three-year term the following individuals: Virgil Anderson, Caminol Company; R. W. Varnum, Pathfinder Petroleum Co.; and K. D. Vandervort, Amerada Petroleum Corporation.

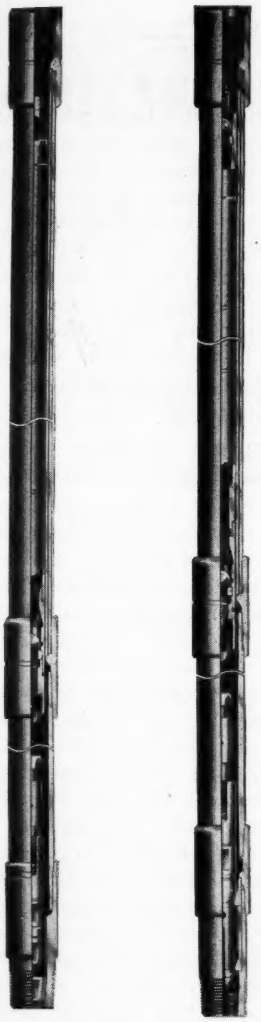
Mr. Vezzetti was inducted into office at a dinner meeting of the Society held on June 27, on which occasion the members also commemorated the twentieth anniversary of the Society.

Roland Smith Keeps Travelling

After having completed one of his periodic trips to the Latin-American countries, Roland E. Smith, export representative, is now in New York in the interests of the companies he represents. Before returning to his Los Angeles office he will visit Toronto, Canada and probably make a trip to the Canadian fields. During his earlier southern journey he went to the various oil fields of Venezuela, Columbia, Ecuador, Peru, and Trinidad, stopping off on his way back in Mexico.

Among the companies represented in foreign countries by Roland Smith are: Abegg & Reinhold Co., Ltd., Globe Oil Tools Co., Medearis Oil Well Supply Co., Weatherford Spring Co., and Willis Oil Tools.

Roland E. Smith



Type F Type P

Fluid Packed Pump Company Develops a Tubing "Full Liner" Pump

Further rounding out their line of Oilmaster down well pumps, Fluid Packed Pump Company, Los Nietos, California, has recently placed on the market a Tubing "Full Liner" Pump. According to the manufacturer, this precision built, economically priced pump was made possible by the company's advanced mass production heat treating and honing methods which were developed for the manufacture of their Improved Insert and Volume Producer Pumps.

The Oilmaster Tubing "Full Liner" Pump is similar in construction to the conventional type, sectional liner tubing pump, the difference being in the substitution of a one piece alloy steel liner for the sections normally used in a tubing pump.

This modern compact unit eliminates needless bulk, reduces weight and substantially decreases the number of parts required yet maintains a tensile strength sufficient to produce efficiently and economically from any reasonable depth.

The high tensile strength of the alloy steel liner has made it possible to reduce its wall thickness to less than half that of the cast liner section which, in turn, permits the liner jacket to be reduced in size accordingly.

Full liner construction eliminates the hazard of misalignment and lends greatly to free plunger travel. Special tools or aligning mandrels are not required to assemble or repair the Tubing "Full Liner" Pump. This feature alone merits consideration from the oil operator who is producing isolated lease and interested in low maintenance costs.

The Oilmaster Tubing "Full Liner" Pump is made in two standard types, Type "P" and Type "F." Both types are of the same general design, the difference being in the plunger and parts accessory group. The two standard assemblies utilize the same basic barrel unit which consists of two collars, a jacket and the one piece alloy steel liner. The liner is cased inside the jacket and is held in position by the collars.

Folders describing the Oilmaster Tubing "Full Liner" Pump are available from Fluid Packed Pump Company, Los Nietos, California.

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Green Advanced by Franks Mfg. Corp.

B. F. Green

B. F. Green, who has been named Comptroller of the Franks Manufacturing Corporation, of Tulsa, in addition to being assistant to the president, has a background of many years experience in the oil industry. Green was president of Refiners Production Company which brought in some of the largest wells in the Oklahoma City field. Before joining the Franks Manufacturing Corporation, he was an independent operator, drilling and producing his own wells. His extensive experience in the direction of his own refining and producing concerns, which included actual operational direction of drilling equipment in the field, has given him an intimate knowledge of both fiscal and operating problems.

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Kelly, Drill Collar or Drill Pipe as it
hangs in the derrick. Easily carried
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table with catline. Ideal for foreign
use or on wildcat wells where transporting Kelly or pipe from rig to shop is
a problem. Handles pipe up to 8¾".
BAKER
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(Continued from Page 1)

In view of his dilemma, it is felt that Barkley is fighting to save the President from having to act at all on the legislation at this time. Barkley, like other Senate leaders, is convinced that if the bill ever gets to a vote in the Senate, it will pass handily.

The bill received an overwhelming majority in the House last year, and could possibly pass over a Presidential veto, though experience has shown that bills which ride to enactment over the President's veto are few and far between. If the Senate fails to act before the coming adjournment, it will mean that the bill will have to begin a completely new legislative journey next year, since all measures not completely acted upon by this Congress die with the end of the Congress.

Future of the National Petroleum Council, which was created recently by Secretary of Interior J. A. Krug hangs in the balance with many representatives of the oil industry definitely fearful that operations of the council may eventually lead to anti-trust troubles.

Despite protestations to the contrary by Ralph K. Davies, acting director of the Interior Department's new oil and gas division, many industry leaders feel that they should move cautiously and secure greater assurances that the council can act without opening the industry to later anti-trust suits.

The 85 members of the council spent nearly a day arguing this point at the original session, and the same subject headed the agenda for the first meeting of the organization committee which started here July 9.

Greatest concern, of course, is being shown by representatives of the major oil companies and officials of the American Petroleum Institute, since they are already fighting one of the most sweeping anti-trust cases ever brought against the industry.

What prompted the fears was the letter written by Attorney General Tom C. Clark in reply to a request by Secretary of Interior Krug regarding the legality of the proposed council. Clark's reply was interpreted by Davies, Krug and some members of the new council as giving it the legal green light. Others, however, took a much dimmer view of the situation. In fact, they interpreted the letter as virtually a warning to the council and its members that they must be extremely careful or the Justice Department would step in.

Leaders who are most anxious to get the Council going and become the Washington spokesman for the industry on a nation-wide scale are attempting to get further clarification of the Attorney General's position with regard to specific activities of the Council. If a definite line can be drawn specifying the limits to which the Council can go without fear of anti-trust action and they provide enough leeway to make the Council effective, it is believed that most of those who are fearful now will agree to go along.

Davies, who was among the first to suggest organization of such a Council, is expected to remain here until the major hurdles are overcome. He is anxious, however, to get away from Washington as soon as possible and take that "long vacation" he has been promising himself since the war ended. As yet, there is no indication of what he intends to do in private business after he completes his vacation.

Walter S. Hallanan, Temporary Chairman, National Petroleum Council, announced the names of those composing the Committee on Organization of the Council. This Committee was authorized at the first meeting of the Council, held in Washington, D. C., June 21, 1946. The Committee members were notified of their appointment in the following telegram: "Under authority of resolution approved by National Petroleum Council in meeting June 21, 1946, the chairman was authorized to appoint a committee of fifteen members of the council to consult with Interior Department and others concerned, including council members, and to recommend to the Council the type of organization as well as the scope of authority and function of the National Petroleum Council. I hereby appoint you as a member of such committee. In order to have early consideration of organization plans I have called a meeting of this committee to be held in the Continental Room at the Statler Hotel in Washington, D. C., Tuesday, July 9th at 10:30 a.m. Please wire me here at 500 Investment Building your acceptance and intention to attend meeting. It is highly important that you should attend meeting here next Tuesday."

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Foundation In For Cantua Try

In the vicinity of Cantua Creek, Bankline Oil Co. has built foundation for its Kenyon No. 1 wildcat in Sec. 4-17s-15e, Fresno County. Contract has been let to San Joaquin Drilling Co.